Medical Library

Volume XXI. No. 7 JULY, 1930

Canadian Public Health Journal

JUL 29 1930

Devoted to the Practice of
PREVENTIVE MEDICINE

Presidential Address
W. L. HUTTON

An Outbreak of Psittacosis in Canada
A. R. CHISHOLM

The Municipal Doctor Scheme in Saskatchewan
F. C. MIDDLETON

Typhoid Fever at Gillam, Manitoba
F. W. JACKSON

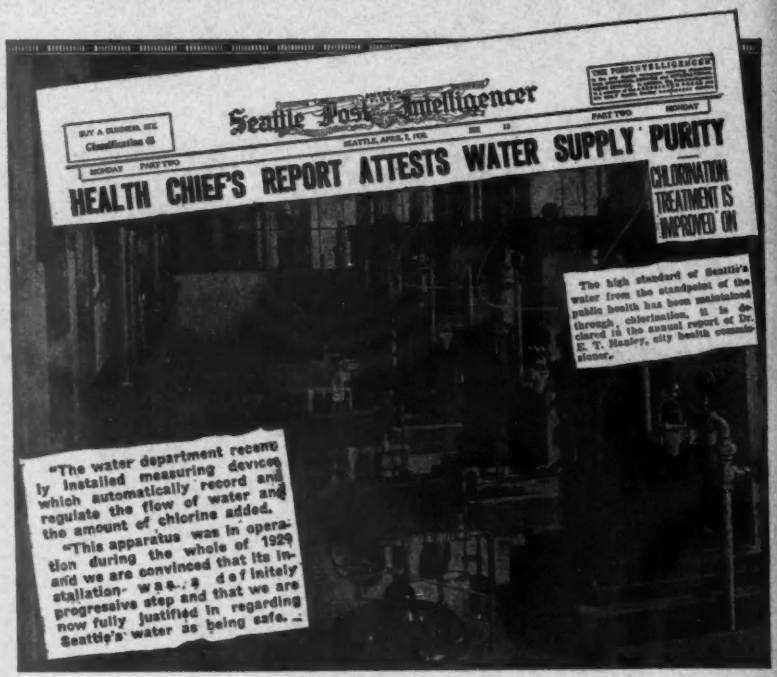
Prevention of Crippling in Children
R. I. HARRIS

The Modern Communicable-Disease Hospital
B. EVAN PARRY

Anti-Tuberculosis Programmes in Europe
F. G. FERGUSON

The Public Health Nurse and Maternal Mortality
M. S. TAYLOR

Published by the
CANADIAN PUBLIC HEALTH ASSOCIATION
Editorial and Business Offices:
40 ELM STREET, TORONTO 2


Seattle Post-Intelligencer
HEALTH CHIEF'S REPORT ATTESTS WATER SUPPLY PURITY
CHLORINATION TREATMENT IS IMPROVED ON
The high standard of Seattle's water from the standpoint of the public health has been maintained through chlorination, it is declared in the annual report of Dr. E. T. Hanley, city health commissioner.
"The water department recently installed measuring devices which automatically record and regulate the flow of water and the amount of chlorine added.
"This apparatus was in operation during the whole of 1929 and we are convinced that its installation was a definitely progressive step and that we are now fully justified in regarding Seattle's water as being safe.

Automatic Chlorination —
Solves Seattle's Problem

"The Only Safe Water is a Sterilized Water"

ACCURATE proportioning of chlorine dosage to a widely varying flow was Seattle's problem. Dependable automatic control apparatus a necessity. « « That the six W&T Automatic Vacuum Chlorinators installed on Young's Lake Supply adequately fill this need is evidenced by Dr. Hanley's report. « « Technical publication 106 (yours for the asking) describes this apparatus in detail.

WALLACE & TIERNAN, LIMITED

Manufacturers of Chlorine Control Apparatus

32-34 FRONT STREET WEST, TORONTO

813 ROYAL BANK BUILDING, MAIN & WILLIAM STREETS, WINNIPEG

SA-23

CANADIAN PUBLIC HEALTH JOURNAL

VOL. XXI July 1930 No. 7

Three Problems*

W. L. HUTTON, M.B.

Medical Officer of Health, Brantford

THE triumphs of preventive medicine are the glory of the age in which we live. The success achieved in controlling those tropical scourges, malaria and yellow fever, has been duplicated in the control now exercised, in more moderate climates, over such dread diseases as typhoid fever and diphtheria. The scientific value of pasteurization for the protection of the public against milk-borne diseases is firmly established. Filtration and chlorination for the protection of public water supplies has abolished water-borne infections. Toxoid inoculations for the prevention of diphtheria and vaccination for the prevention of smallpox are proven methods of controlling these diseases. The slow growth of the habits of cleanliness, municipal and personal, has reached a peak never before achieved in the history of man, and from this has followed as though by magic the wiping out of those ancient scourges—typhus fever and bubonic plague. The newer knowledge of nutrition, the recognition of the supreme value of sunlight, the widespread use of orange juice and cod-liver oil in infant feeding, are all uniting to build stronger bodies in those of the oncoming generation.

The care exercised in discovering and remedying physical defects among school children, and the operation of pre-natal and well-baby clinics are saving the lives of countless children. Diagnostic chest clinics are uncovering many of the early cases of tuberculosis, and venereal disease clinics are achieving some success in the prevention of the late insanities which so frequently follow syphilis. Paralleling these purely public health achievements we find great sociological experiments such as Mother's Allowances, Old Age Pensions, and, in the offing, Unemployment Insurance. The world slowly but surely has been growing a safer, a healthier and better place in which to live. In the last 120 years there has been a gain of some twenty-five years in the expectation of life for the average man on this continent, and in Great Britain it is stated that to-day, as compared with 1871 there are

**Presidential Address presented at the Joint Annual Meeting, Ontario Health Officers' Association and Canadian Public Health Association, Toronto, May 20, 1930.*

thirteen millions more population and 50,000 fewer deaths each year. But the actual span of life has not been lengthened. It is only that the average man is living longer. It is not at all certain that the expectation of life will be further added to, because the limits of what may reasonably be expected from human endeavours must some day be reached. That in itself may not be an evil, for merely to prolong life is not necessarily the greatest achievement. The real aim of preventive medicine is to maintain a race of healthy young people and to extend the period of their vigorous life through the allotted span of human existence. Are we succeeding in that aim? If there is one criticism which may be justly levelled against the whole modern public health movement it is this—that the very success of the movement has increased the problem by saving the weakest strains of humanity. There has been a very evident disregard of the great biological truth that the control of the human race lies in the germ-plasm, and that the future of man, his strength, his very happiness, depend upon the reproduction of this germ-plasm by the fit and the strong.

There is no guarantee that the progress of this age will continue. There is no surety even that this civilization will not join those long forgotten ones whose very existence is known only by a few pots or trinkets buried deep in the ground. It is evident, therefore, that there must be no cessation in the endeavour to release the human frame from all physical and mental handicaps. Biological mistakes must be avoided, and Science, with Medicine for her handmaiden, must press on towards the ultimate solution of the many problems which still remain unsolved.

Occupying the front place among such unsolved problems, like a huge question mark, stands Cancer, the greatest scientific challenge of the age. In Ontario alone, 3,441 citizens died from cancer in 1928, and our Minister of Health, Dr. Forbes Godfrey, estimates that there are actually more than 30,000 cases of cancer in the Province, costing for medical services alone well over $3,000,000 every year. Let us ask ourselves what do we really know about cancer. Very little. We know its age incidence and its relation to chronic irritation. We know it begins as a local disease, and that if it is destroyed or removed in its early stage, a cure is possible. And that is about all we know. This knowledge is not enough, and for the honour of the medical profession we cannot rest content with this limitation. There is a strong tendency among practising physicians and among official health departments to adopt a policy of *laissez-faire*,—secure in the knowledge that hundreds of research workers throughout the world are ceaselessly devoting their lives to the unravelling of this great mystery. Do we not place too great a burden upon their shoulders, and instead of adopting the attitude that we should wait for such workers to point the way for the control of cancer, should we not aim to assist them by

securing and providing all available data regarding cancer? Cancer should be made a reportable disease. Such reports should require a careful classification of the character of the new growth, and a real endeavour should be made to ascertain the probable beginnings in each case. The accumulation of such data would be of undoubted value, and might even throw some light on that curious Canadian phenomenon regularly recorded in the monthly reports of the Dominion Bureau of Statistics and showing always a predominant number of deaths from cancer in the Province of Ontario as compared with the number of deaths from cancer in the Province of Quebec. Whether some factor in the environment is the cause or predisposing cause of cancer is not known, but there is the possibility that this is so, and the steady accumulation of the facts regarding cancer by local and provincial health authorities might in time reveal important information regarding this great menace to the health of the people.

Twenty years ago tuberculosis occupied the place which cancer now claims as the predominant public health problem of the day. Tuberculosis then ranked first as a cause of death. The shadow of the white plague covered the land. Fear and ignorance, low standards of living, poverty and overcrowding, favoured and fostered its spread. To-day the picture has changed. Tuberculosis is still a tremendous public health problem but it is no longer the chief burden upon the earnings of the workers of this country. Slowly but steadily it has receded from first place among the causes of death, until to-day it is ranked definitely below heart diseases, below cancer and below pneumonia. Almost every year has seen a reduction in the number of Ontario citizens who die from this disease. Whereas 2,215 deaths were due to tuberculosis in 1919, and 1,989 deaths in 1923, only 1,832 deaths were due to this cause in 1928. The death rate from tuberculosis has dropped from 78 in 1919 to 56.7 in 1928, per 100,000 of population. The rate declined rapidly during the five-year period 1919-1923 from 78 to 65.6. The decline in the next five-year period, 1924-1928, is less marked, dropping only from 59.5 to 56.7. Fewer deaths have meant fewer advanced cases, and fewer advanced cases have meant a reduction in the number of new infections. These are gratifying signs of the trend in tuberculosis mortality, but they do not point to any sudden or dramatic disappearance of the problem from our midst. Indeed they but emphasize the need for increased efforts to consolidate the ground already won, and for renewed endeavours to accelerate the rate of the decline. The provision of adequate sanatorium facilities, along with proper facilities for the early diagnosis of tuberculosis, are the proven weapons which must be used if real success is to be achieved. It has been estimated that there is an immediate and pressing need for an additional 1,500 sanatorium beds in the Province of Ontario, in order to take care of the existing cases which should be in such sanatoria, and it is well known that this shortage of sanatorium accommodation is particularly

felt in the northern and eastern parts of Ontario. Failure to recognize such needs cannot be justified on any grounds. Financially the cost of operating such sanatoria is large, but the cost of tuberculosis itself is far greater, and the price exacted in poverty, humiliation and unhappiness is beyond computation. The time for the final onslaught against tuberculosis has arrived. Another twenty years of intensive effort and tuberculosis can be so bound, shackled and subdued that it will sink to the rank of one of the very minor causes of ill-health and of death.

The third and final problem of great public health import to which I desire to direct attention is the problem of maintaining the mental health of the people of this Province, and to the necessity of guarding the human blood-stream against the menace contained in that type of feeble-mindedness which exhibits familial characteristics. The maintenance of mental health and the prevention of feeble-mindedness is entitled to as much consideration from health officers as is the prevention of smallpox or diphtheria. Some hint of the size of this problem may be obtained from the records of various provincial institutions. Over 10,000 victims of insanity are maintained in Provincial hospitals; 1,424 feeble-minded individuals are under training at Orillia with over 1,000 on the waiting list, and there are 3,380 mentally-retarded children in the auxiliary classes conducted in various centres throughout Ontario. These figures by no means indicate the real size of this problem.

It is conservatively estimated that 2 per cent of the school population has an intelligence rating so low that admittance to training or special industrial classes is advisable. Whether this percentage is increasing or decreasing in the Province of Ontario is unknown, and this is a question which should be answered at the earliest possible moment. The English Royal Commission on Mental Deficiency reported in 1908 that there were in England 4.6 feeble-minded persons per 1,000 of population. The report of the Royal Commission for the year 1929 states that there are now 8.56 feeble-minded persons per 1,000 population in England. Much of this apparent increase may doubtless be explained by the completeness of the latest survey and by the changing standards for the measurement of mental defect, but not all of the increase can be so accounted for. What is the trend in Ontario?

From a national standpoint the necessity of guarding against the immigration of mentally defective persons is indicated by the experience of the United States Public Health Service, which during the last fiscal year (1928-29) refused immigration privileges to 7 out of every 1,000 prospective immigrants examined abroad, because of mental disorders. Many of the ills of modern society may be traced to this lack of mental health and the cost to the state is a fabulous treasure. One per cent of the population requires segregation and support, either because of feeble-mindedness or insanity, or delinquency and dependency. Hospitals for mental diseases, institutions for feeble-minded, institutions for

epileptics, penitentiaries, reformatories, jails, homes for wayward women, unmarried mothers and juvenile delinquents, all these and more besides, consume vast sums of money and lower the standard of living for all the rest of the population. Every community in Ontario contains examples pointing to the size of this problem of the feeble-minded. Such people are ostracized rather than socialized; they are shunned rather than fraternized with and are degraded still further rather than helped by their fellow citizens. The filth of many of their habitations and their lack of personal cleanliness constitute a definite health menace. The inability of many of them to provide themselves with even the minimum essentials of shelter, clothing and food, constitutes a blot on our whole civilization. Practically all the rules of clean living are disregarded in such homes. Every fundamental principle of child-training is violated and the possibility of such children becoming decent citizens is remote indeed. I do not believe that pauperism will ever be eliminated until a solution is found to the problem of the feeble-minded. Neither do I believe that syphilis will ever be eliminated until the ancient reservoir of feeble-minded prostitutes ceases to exist.

The announcement by Premier Howard Ferguson on May 1st, that clinics for the examination of mental defectives would be in operation throughout Ontario by October of this year, constitutes a landmark in the medical and social progress of this Province. It is to be hoped that this is merely a preliminary announcement and that further developments will lead to the establishment of a Department of Mental Hygiene with a staff of competent psychiatrists, psychologists and social workers. Such a department would, no doubt, undertake to survey the entire situation in Ontario and by the epidemiological approach would acquire a knowledge as to when, how and where such mental diseases occur. Registration (without publication) of the feeble-minded would follow, and facilities for diagnosis would be made available for the local medical officers of health. Such a department would be prepared to advise the government on a real and comprehensive programme dealing with this subject, and the relative merits of education, segregation, supervision, and sterilization would be thoroughly studied. It is very doubtful if any one of these methods provides an exclusive solution to the problem, but the judicious combination of the four offers hope of controlling and reducing the incidence of mental deficiency. Certain it is, that a determined effort should be made to solve this problem. I do not mean to suggest that if nothing is done, in a few years the progeny of the imbecile will cover the earth. I have too great a respect for the average intelligence to conceive of such a catastrophe, but I do fear a gradual increase in the percentage of the feeble-minded population, and this would undoubtedly mean a general lowering of the standard of living, and an increasing burden of taxation to be borne by the mass of the people.

Report of an Outbreak of Psittacosis in Canada*

A. R. CHISHOLM, M.D.

Epidemiologist, Provincial Board of Health, Victoria, British Columbia.

ON APRIL 29th, Dr. J. W. McIntosh, Medical Health Officer for Burnaby, B.C., reported to the Provincial Department an outbreak of atypical pneumonia or influenza which broke out between April 16th and 19th and was later diagnosed as psittacosis. Having three engagements on the Island which could not be broken, I did not begin my investigation until May 4th.

Of the seven cases reported only four were under medical observation. Three of these patients were hospitalized. The histories of the remaining cases were obtained from the patients themselves.

During the last week in March the Blue Funnel Line "Tyndareus" inbound from the Orient lay at a pier in Vancouver harbour. In addition to a general cargo she carried a fairly large number of parakeets, which were sold to bird vendors or directly to any individual who might go aboard. By the time the disease was noticed on the Mainland the "Tyndareus" was on the way back to the Orient. It was therefore impossible to obtain a history of the condition of the birds when in transit.

The customs officials have prepared a list of 112 names to whom birds were cleared through their department, but as the species were not recorded and the names could not be satisfactorily traced, the subsequent history of this group of birds is unknown. In addition to this unknown list, 24 birds brought over by this ship have been traced by Dr. McIntosh, Health Officer for Burnaby Municipality, to ten families. as follows:

Family	Date Obtained	No. Birds Owned	No. Birds Sick	No. Birds Died	No. Persons Sick
A	March 28	2 (13)	1	0	1
B	April 1	3	1	1	1
C	" 2	2	1	0	1
D	" 2	4	1	1	3
E	" 2	2			
F	" 2	2			
G	" 3	2			
H	" 3	2			
I	" 3	2			1 (Contact with birds of Family "A")
J	" 1	3			
10		24	4	2	7

Published with permission of Dr. H. E. Young, Provincial Health Officer.

1. *Case of Family "A"*

Male, age 38—No physician in attendance.

Contact with Parakeets:—On March 28th Mr. and Mrs. "A" went aboard the S.S. Tyndareus and obtained in all 15 parakeets, two of which were placed in a new cage built by Mr. "A" and the remainder were taken home in one of the ship's cages. Mrs. "A" states that this cage was very dirty and on arriving home she immediately cleaned and disinfected it. Between March 28th and April 2nd all of the birds of this large group were distributed to families "B", "C", "D", "E" and "F", three of which became ill and two died. Of the original pair kept by Mrs. "A" one bird was ill for a day only.

Symptoms:—On April 16th the patient complained of not feeling well. On April 18th he was taken suddenly ill with a severe frontal headache, marked chilling, an irritating dry cough, stiffness of the neck, sweating and constipation. Mrs. "A" ,who is a qualified nurse, thought he had typhoid at first. She took pulse, respiration and temperature regularly but did not keep any record. She states that the pulse stayed around 90, respirations were not increased, and the temperature was 102 to 103 for four or five days and then gradually fell. She also noted a foul tongue, a very fetid breath, and commented on the patient's wish to be left quietly in bed and remain undisturbed. There was a total loss of appetite, water and orange juice being all the patient would take. The patient was confined to bed until April 30th.

2. *Case of Family "B"*

Male, age 58.

Contact with Parakeets:—Handled the birds distributed by Mrs. "A" and received one pair of parakeets on April 1st. On April 4th one bird sickened and died a few days later. The owner states that it just became mopey, the feathers became ruffled, and there was no history of diarrhoea, audible breathing or nasal discharge.

Symptoms:—Complained of a chronic cough three weeks previous to onset of illness. On April 23rd when seen by local M.H.O. was complaining of headache, severe productive cough and fever. On April 26th was transferred to the Vancouver General Hospital with high fever (105), respiration and pulse moderately increased, sweating and chills, productive cough and headache. On April 31st the attending physician reported consolidation in lower right chest. On May 6th moist coarse rales were prevalent over this area, and the temperature had fallen by lysis to about 99.

Laboratory findings:—

Agglutination for typhoid, paratyphoid A & B and B. abortus—Negative.

Sputum—Negative. Blood—Negative.

Throat and nose culture—nose positive for diphtheria.

This patient has complained of a heart condition and chronic bronchitis for several years.

3. *Case of Family "C"*

Female, age 43—No physician in attendance.

Contact with Parakeets:—Mrs. "C" obtained a pair of birds on April 2nd. The next day one of them became ill. It was mopey, its feathers became ruffled and there was a severe foul-smelling diarrhoea, and audible breathing. Mrs. "C" handled and cared for the bird during its illness.

Symptoms:—On April 12th taken suddenly ill with severe occipital head-

ache and chills. Later she complained of stiffness and soreness of the neck, a dry irritating cough with an occasional amount of coloured (rusty) sputum, slight pain in the right chest; on May 6th patient still complained of a soreness there. There was a complete loss of appetite, foul tongue, fetid breath; stubborn constipation for three days after continued use of purgatives resulted in diarrhoea. There was abdominal discomfort and distension, continuous perspiration, and the patient remarked that she hated to be disturbed and wished only to be left quietly in bed, where she remained until April 28th. On May 6th she was still convalescing and complained on the slightest exertion.

4. *Cases of Family "D"*

Mr. and Mrs. "D" and son George.

Contact with Parakeets:—Two pair of birds received on April 2nd. Next day one became ill and moulted in its cage. Its feathers became ruffled and a diarrhoea with marked odour developed. This condition increased gradually until the bird died a few days later. Mrs. "D" constantly handled the bird during its sickness and frequently cleaned away the excrement sticking to the feathers with a stick or swab.

Symptoms:—Mrs. "D" taken suddenly ill on April 14th. Seen by a physician on April 16th, complaining of severe frontal headache, sore throat, vomiting, constipation. Temperature 103-4, pulse 90-100, respiration not increased. Congestion of the left lower lobe developed within the next two days which shortly involved all of the left chest. Respirations were not increased and no chest pains developed. This condition did not go on to consolidation but resolved within a week or ten days, temperature falling to normal by lysis. There was marked toxaemia out of all proportion to the clinical findings, together with a distinct lung involvement with a noticeable lack of the usual pulmonary symptoms expected in such an involvement. Blood showed leucopenia. Mr. "D" had not been feeling well for two days previous to his wife's illness, was taken ill shortly after and complained of a severe frontal headache, hacking dry cough, and was transferred to the hospital on the same day as his wife. Temperature 103 plus. Pulse 90-100. Respirations not increased. Congestion of both lower lobes was noticed; no consolidation. Temperature fell by lysis. Both patients discharged on May 6th, Mrs. "D" still convalescent.

George "D", age 23, taken sick on April 19th and confined to bed with a slight cough and fever until April 26th. An accurate history of this case could not be obtained.

5. *Case of Family "I"*

Miss "I", age 20—No physician in attendance.

Contact with Parakeets:—Known contact with birds of Family "A" a few days before onset of symptoms. Daily contact with own birds since April 3rd, which remained well.

Symptoms:—Taken suddenly ill April 16th with intense frontal headache, severe vomiting and diarrhoea, foul tongue, fetid breath, dry irritating cough and stiffness of the neck. Confined to bed for eleven days.

A companion of this case, male age 22, contact with birds of Family "A" same day and repeated contact with birds of Family "I", took ill about the same time and was confined to bed for four to five days with severe frontal headache, vomiting, diarrhoea, cough, and neck stiffness. Detailed history of this case could not be obtained.

Family	Date Birds Obtained	Date Bird Ill	Date of Patient's Onset of Illness	Days Sick
A	March 28	About April 3	April 16	14
B	April 1	" " 4	" 16	20
C	" 2	Next Day	" 12	16
D	" 2	" "	" 14 (Mrs. D)	22
			" 12 (Mr. D)	24
			" 19 (Geo. D)	7
I	" 3	Not Ill (Contact with Family "A")	" 16	11

Average date of onset of illness of birds —April 3
" " " " " " " persons — " 15
" incubation period —12 days
" length of illness —16 "

All patients interviewed state that they never had any sickness like it before. They commented on it being similar to influenza in the beginning but yet different. All patients were extremely ill and their convalescence was characterized by extreme weakness and lassitude.

All persons who took ill were in direct contact with sick parakeets. Two parakeets suffered with diarrhoea and died. The average date of onset of illness in birds was April 3. Average date of onset of illness in persons was April 15. Average length of illness 16 days.

The condition was characterized by sudden onset with severe frontal or occipital headache, soreness and stiffness of neck, high fever, chills and sweating, with little disturbance of respirations or pulse; cough mostly dry and irritating with only occasional production of mucus. The three cases under medical observation all had congestion of lungs, in one it involved the whole of the left lung, in another both bases were involved, and in the third the congestion went on to consolidation. Cough was also a troublesome feature of these eight cases. Those cases not under medical supervision all complained of a severe irritating dry cough, one case coughing up a small amount of dark stained mucus. It is natural to assume, in view of the general picture, that these cases, if examined, would also show a certain amount of lung involvement. One case, Family "C", complained of abdominal discomfort and distension. Some had pronounced diarrhoea or constipation. All of them had a fetid breath and coated tongue, appetite was entirely absent, and several patients commented on their wish to be left alone and not disturbed when sick.

Laboratory findings were practically negative. One gave a positive nose culture for diphtheria. One gave mild leucopenia. The remaining blood counts showed a normal count or only a very slight increase. Agglutinations for typhoid, paratyphoid A and B, and B. abortus were negative. Sputum, negative. Urine, negative.

The outstanding characteristics of this outbreak, namely a definite incubation period (12 days), sudden onset, high fever, lung involvement with little disturbance of respiration and pulse, neck stiffness, vomiting, diarrhoea and constipation, create a clinical picture similar to that of psittacosis. These symptoms when associated with a known

history of sick parakeets which were received by these people direct from the Orient between March 28th and April 3rd, four of which became ill on April 3rd and 4th and two suffered with diarrhoea and died, strongly support the diagnosis. But until the causative organism is isolated and a laboratory technique established which will confirm the diagnosis, psittacosis will frequently be confused with bronchopneumonia, atypical influenza, lobar pneumonia, and perhaps typhoid.

SUPPLEMENT

In a letter to the Provincial Board of Health dated March 29th, Dr. Ridewood of Victoria reports two cases as follows:—

Case 1. Mrs. T—Last August she received two love-birds from California. One took sick with diarrhoea and died within the next day or so. Shortly after Mrs. T had a severe rigor and became suddenly ill with headache, sore throat, pleurisy, temperature 104, delirium, diarrhoea, was diagnosed as typhoid but laboratory reactions were negative. In all she was ill about six weeks.

Case 2. Mr. R—About eight weeks ago taken so suddenly ill thought to be perforated gastric ulcer, following this pleuratic rub and bronchitis developed, with continued high fever and typhoid state. Regarded as pneumonia, but X-ray showed an atypical shadowing. This patient suffered with extreme diarrhoea but stools were negative for dysentery and typhoid. Blood showed high leucocytosis, maximum 36,000 polys. Sick about seven weeks. No definite contact with parrots or parakeets could be proven in this case.

The Municipal Doctor Scheme in Saskatchewan

F. C. MIDDLETON, M.D., D.P.H.

Deputy Minister of Public Health, Saskatchewan

THE Province of Saskatchewan has a population of 866,700, scattered over an area of 251,700 square miles; 14.4 per cent of the people reside in the eight cities; 7.7 per cent in the 80 towns; 8.4 per cent in the 377 villages, and 65.3 per cent in the 301 organized rural municipalities; and in addition 2.9 per cent reside in unorganized territory and 1.3 per cent are Indians on the reserves. Over three-quarters of the population might be considered as rural residents. To provide adequate medical and nursing services, especially to these rural sections of the Province, has been one of the many problems to be solved by the people.

The natural tendency for both doctors and nurses is to drift to the larger centres where there are hospital fcailities, where there are living conveniences such as those found in cities and towns and where there are better educational facilities for children. With a sparse population in many districts the amount of professional work for a doctor or nurse is not sufficient to warrant them remaining in such district and, of course, coupled with this is the comparatively high expense and great inconvenience to individuals, when sickness occurs, in bringing a doctor or nurse from long distances.

Co-operative schemes having been tried out in this province in many other lines with a good deal of success, it was thought that a co-operative scheme to meet the requirements for supplying doctors and nurses might also be worked out, with the result that permissive legislation was asked for, allowing the rural municipal councils to engage the services of a doctor or nurse for the municipality. The necessary legislation was therefore placed in the Rural Municipality Act as follows:

Grants to Physicians

The Rural Municipality Act, Chap. 34, Section 173, sub-section 38, of 1928-29, provides that the council of every municipality shall pass such by-laws as it may deem expedient for the purpose of making an annual or other grant to a legally qualified medical practitioner resident in the municipality as an inducement to such practitioner to reside and practise his profession within the municipality, or guaran-

teeing the income of such practitioner in consideration of his residing and practising his profession within the municipality, no such grant to exceed $1,500.00 per annum and no such guarantee to exceed the amount required to bring such income up to $1,500.00 per annum.

In case there is no urban centre in such municipality, the grant or guarantee may be given to a doctor residing in a village in an adjoining municipality.

When such a grant is given to a physician, the primary purpose is to ensure that a doctor is located within a reasonable distance, and the agreements as to what professional services will be required for the grant vary considerably. In practically all cases the doctor is required to do the duties of medical health officer and to give free medical services to indigent cases within the municipality; in some cases milage charges are reduced and in some, reduced charges are made for maternity cases.

Some thirteen rural municipal councils pay grants varying from $900.00 to $1,500.00 a year.

HIRING A PHYSICIAN

The Rural Municipality Act, Chap. 34, Section 174, 1928-29, provides that the council may submit to the electors a by-law empowering the council to engage the services of a legally qualified medical practitioner for the municipality at a salary not to exceed $5,000.00 per annum. If twenty-five resident ratepayers petition the council to submit such by-law to the electors, the council must do so, and after the by-law has passed, if twenty-five per cent of the resident ratepayers request that the by-law be repealed, the council must submit a repealing by-law to be voted on by the electors.

When a municipality has voted to engage the services of a municipal doctor, the council draws up a written agreement outlining what services the doctor shall give to the people. The agreement usually requires,—that the municipal doctor act as medical health officer; that all indigent cases within the municipality be given free medical care; that all resident ratepayers, their families and dependents be given free medical service, and in some municipalities hired help is included in the free service and such other residents as the agreement may call for. Free vaccination against smallpox and inoculation against diphtheria for both pre-school and school children are included, and in some municipalities the doctor is required to medically examine all the school children in the municipality once a year.

Nineteen municipalities have engaged municipal doctors, several others have passed the necessary by-law and more are considering the scheme. Invariably where one municipality has engaged a municipal doctor, the adjacent municipality is not long before it also engages a

municipal doctor so that they appear on the map in groups of twos and threes adjoining one another.

The salary paid varies from $3,500.00 to $5,000.00 a year, according to the district. Based on $5,000.00 a year it costs about $3.85 taxation per quarter section per year for medical service.

A rural municipality is an area 18 miles square so that with a doctor located about the centre it would mean that he would be within reasonable distance of all his patients.

In one municipality where a municipal doctor has been engaged for a number of years, the municipal council also pays for the services of a nurse for any of its ratepayers for a period of fifteen days in any one year, when in the opinion of the doctor a nurse is required. A nurse is supplied at the expense of the council for all normal maternity cases for nine days and longer if the doctor thinks it necessary. The nursing service under this arrangement cost this municipality in 1928, $2,053.00. This municipality has a population of 1,350. Taking a period of six years, 1923 to 1928, inclusive, there were in that municipality 185 births with no maternal deaths. There were 25 deaths from all causes in the six years, representing an average death rate of 3.3 per 1,000 population. Twelve of the twenty-five deaths were as follows: 1 drowning; 1 fractured skull; 1 intussusception; 1 infant found dead on railway tracks; 1 suicide; 1 accidental scalding; one aged 69; two, aged 70; one, 74; one, 78 and one 80, all of which might be considered uncontrollable. There were 9 died under 1 year of age so that the infant mortality rate was 48.7 per 1,000 living births. There was not one death from a communicable disease in the six years.

The success or failure of the municipal-doctor scheme depends largely on the doctor employed. Financially, the doctor is much better off because he has no bad debts. From a public-health viewpoint this sytem next approaches the full-time health unit, and the fact that not one municipality which has ever tried the scheme, has repealed the by-law is evidence that it is satisfactory to the people.

An Outbreak of Typhoid Fever at Gillam, Man.

F. W. JACKSON, M.D., D.P.H.

Director, Division of Communicable Diseases, Department of Health and Public Welfare, Manitoba

GILLAM is a divisional point on the Hudson Bay Railway, situated 327 miles northeast of The Pas. At the time of the outbreak, it contained the usual roundhouse, shops, bunkhouses, cookhouse, etc., as well as a railway hospital. There were five stores, six restaurants, two billiard parlors, a boarding house, and some thirty-five private residences, with a total permanent population, including those employed by the railway company, of about 200 people.

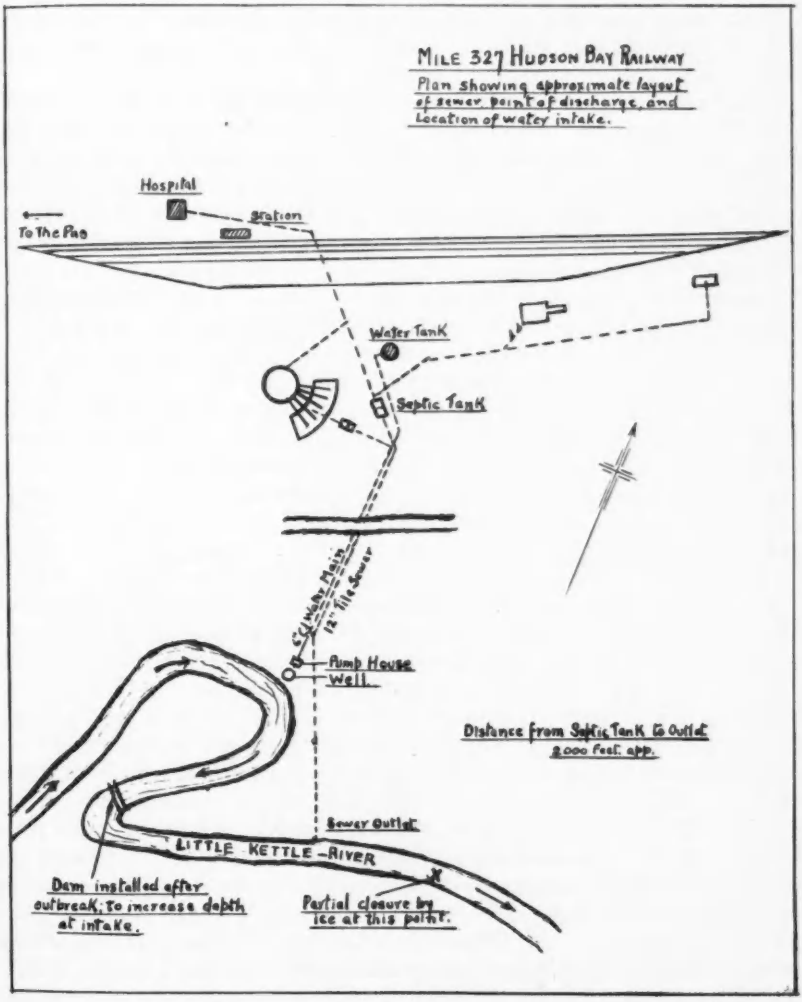
All the railway buildings, including the hospital, were provided with water and sewer connections. Sewerage was treated by means of a septic tank, and the effluent discharged into the Kettle river, some 2,100 feet distant, there being a fall in this distance of 60 feet. Water was obtained from a well situated on the bank of the Kettle river, about 1,200 feet by river above the sewer outlet. Both the sewer and water pipe were laid in the same trench from near the river up to the townsite proper. The well was cribbed with timbers, and, not very efficiently banked at the top, was far from being free from the danger of surface or sub-surface contamination. The well was filled from the river through a bank of sand by the process of infiltration. However, when the water in the river got low in the winter time, it was found that there was not sufficient water in the well, so direct connection by means of a pipe was made between the river and the well.

The residents of the town used the ordinary hole-in-the-ground privies, obtaining their water, however, principally from the railway water supply. One other source of water supply was a shallow well situated in the basement of the boarding house.

All trains running on the H.B.Ry., at this time stopped for the night at Gillam, so that practically all travellers made use of the conveniences established by the railway company, and were forced to have at least two meals in the town.

On March 29th, 1929, two men reported ill to the company's physician, and were admitted to hospital. No definite diagnosis was made at this time. By April 4th, six more cases of a similar type had reported and were hospitalized. At this time the diagnosis of typhoid fever was made. New cases developed rapidly, so that by April 10th, twenty-two cases altogether had been reported and admitted to hospital.

All these cases were residents of the immediate neighbourhood. Sickness developed up the line, however, about this time, and cases were reported from Mileage 412, from Churchill, and ultimately from York Factory. Twelve cases occurred in one gang of men in a camp on the


MILE 327 HUDSON BAY RAILWAY
Plan showing approximate layout of sewer, point of discharge, and location of water intake.
Hospital
Station
To The Pas
Water Tank
Septic Tank
Sewer Main 12" tile Sewer
Pump House Well
Distance from Septic Tank to Outlet 2000 Feet app.
Sewer Outlet
LITTLE KETTLE RIVER
Dam installed after outbreak, to increase depth at intake.
Partial closure by ice at this point.

H.B.Ry. north of Gillam. All these men had previously stayed overnight at Gillam. Altogether some sixty-nine people contracted the disease, the last case being admitted to hospital on May 1st. The whole of the cases occurred practically within a period of about one month. Amongst these sixty-nine cases, there were eight deaths.

Winter conditions are so severe in the north country that even as late as May blizzards rage. On May 6th, a hospital car containing 14 patients was snowbound between Churchill and Mileage 327, and was forced to spend the week there before being relieved. The case reported from York Factory gave a history of having passed through Gillam two weeks previous to contracting the disease. It was impossible to remove this case to hospital, so nurses and a doctor were sent out by aeroplane.

A study of the first twelve cases showed that all of these cases had been in Gillam some time within the three weeks preceding the time that they had contracted the disease. There was no eating-place common to all the cases, meals having been eaten at all the various restaurants as well as at the company's cookhouse, so this could be eliminated as a possible source of infection. It being winter, there was no possibility of the disease being transmitted by flies. The only common factor, record of which could be elicited in taking the history of these cases, was the drinking of water supplied by the H.B.Ry.

Following this preliminary study on April 6th, investigation was immediately made of the water supply, blasting of the ice in the vicinity of the water intake being necessary. The river at this point when opened up was found to be foul and evil-smelling. Samples of water submitted to the Provincial Laboratory were reported on as follows:

	Bacterial Count	*Colon Bac. in 1/10 c.c.*
River water	400	*Positive*
Well water	600	*Positive*
Railway tap water in Roundhouse	800	*Positive*

Further investigation was made to find the source of contamination. After a considerable amount of blasting of the ice in the river had been done, it was found that some few hundred feet below the sewer outlet the river had apparently frozen solid so that there was no flow. (See sketch.) As a result of this, sewage backed up and was pretty thoroughly distributed in the water pocket between this ice dam and the water intake, so that the water being pumped into the main, and from there to the tank at the roundhouse, was heavily contaminated with sewage. The intake pipe from the well to the river was immediately closed, and the well thoroughly chlorinated by the use of chloride of lime. Instructions were issued forbidding the use of this water for domestic purposes, unless the same was boiled. The epidemic stopped almost immediately. A permanent chlorinator, using gas, has since been installed and in operation continuously. Samples of tap water from the roundhouse showed pollution by colon bacilli for two or three months following the outbreak, due to contamination becoming lodged in the tank at the roundhouse. By increasing the amount of chlorine in the water this was ultimately cleaned up.

All cooks employed by the company were given a Widal test, and all proved negative. Circumstances did not permit bacteriological

investigation of fecal specimens. Histories were taken of the men employed in and about the roundhouse, and showed that one man had been sick with typhoid fever in the Flin Flon area in September, 1928, and had come to work at Gillam in the latter part of January, 1929, or early in February, and had used the conveniences situated at the roundhouse continuously since that time. There is little doubt that he was the original source of infection.

Steps were taken during the summer to prevent a recurrence of the trouble, a cement dam being built well above the sewer outlet. This effectually prevents the possibility of a backflow of sewage, and also assures a more adequate supply of water. (See sketch.) Chlorination, of course, of the water supply is being continued.

The citizens of the town formed themselves into a health committee, and set forth certain regulations governing the sanitary situation in the town. Hole-in-the-ground privies were discontinued, and the pail-type privy instituted. A new public water supply, a dug well, was secured. This is situated in the centre of the town, is fairly well constructed and should be free from contamination.

As a result of the epidemic, a Bill was passed in the Legislature, giving the Minister of Health and Public Welfare power to enforce vaccination against smallpox, and inoculation against typhoid in all camps of any area specified. This was immediately brought into force for the area in northern Manitoba, so that at the present time practically 100 per cent of the men employed in this area are so protected. All railway water supplies, which might possibly be called public water supplies, are also required to be chlorinated, so that the possibility of a recurrence of such an epidemic, regardless of the widespread seeding of the disease in the north country, would seem remote.

CONCLUSIONS

Modern conveniences of civilization may be a menace to the public health, unless they are properly controlled, both as to their construction and their operation.

Special precautions should always be taken in any rapidly growing new settlement, to prevent the spread of communicable disease. These precautions should take the form of special sanitary supervision, and the use of the methods now at our disposal to give immunity to the various conmunicable diseases.

The epidemic of typhoid in this instance was waterborne.

The infection was conveyed, probably, from a "carrier," through sewage to the water supply.

Crippled Children

How May Their Deformities Be Prevented?*

R. I. HARRIS, M.B.

Associate Surgeon, Toronto General Hospital

IN these humanitarian days great interest is being displayed in the cure and care of crippled children. Rotarians and others have made these unfortunate children the special objects of their interest. With admirable energy they have organized surveys and financed hospital and surgical treatment. From their years of experience, there has come a clear conception of the magnitude of the problem; the numbers of crippled children, the extent of their disabilities, the variety of causes, the permanence of some of the disabilities, and the need for special education and vocational training. From this intimate knowledge of the problem has grown naturally the question "How many of these crippling deformities could have been prevented?"

Certainly prevention, if it can be attained, is much better than treatment after the deformity is established. All too frequently deformities once established can never be completely cured. They can be improved by surgical care but even after all has been done which can be done, the child is still permanently physically handicapped. It is obvious that in such cases prevention would be better than treatment after the deformity is established. Not only would the child be spared a long and distressing illness but the permanent disability would be entirely prevented. The prevention of deformities is well worth our serious consideration.

The problem of how to prevent deformities is complex. To a great extent it is a problem belonging to the field of medicine, but there are social and administrative aspects to it which should command the interest of every public spirited citizen. To begin with, the problem of prevention varies with the disease which has caused the deformity. In Ontario, we find that the deformities of crippled children are chiefly due to infantile paralysis, tuberculosis, congenital deformities, and rickets. An approximate estimate of the relative importance of the various causative factors is as follows: infantile paralysis 40%, tuberculosis 30%, congenital deformities 15% and other causes 15%. It is clear that effective measures of prevention will differ very widely depending upon the disease we must deal with.

The two most important single factors causing children to be crippled are infantile paralysis and tuberculosis. If we examine these two problems separately, it will give us some insight into what may be done in the prevention of deformities.

**An address presented before the Rotary Club, Toronto.*

Infantile Paralysis

Infantile paralysis is an infectious disease which recurs each year during the summer and early fall. It is due to a germ so small that it cannot be seen under the highest powers of the microscope; hence, it is called an ultramicroscopic virus. The peculiar property of this virus is its ability to attack the cells in the spinal cord, which send out impulses to make muscles move. The spinal cord cells are not attacked in the earliest stages of the disease but only after it has been in existence for several days. Indeed, some patients entirely escape the paralysis which is the serious feature of the disease. If the disease does localize about the cells in the spinal cord, it causes the death of many of them and the serious derangement of many others. As a result, all the muscles dependent upon these cells are deprived of their impulses and are paralysed. With the lapse of time the disease subsides, and those cells in the spinal cord, which have been damaged but not killed, recover. When they do so, they again send out impulses to their muscles and these recover from their paralysis. But those cells which are killed by the infection are never replaced. Muscles supplied by them are permanently paralysed. A typical case of infantile paralysis passes through an acute illness of a few days' duration, which is followed by paralysis. After a long lapse of time, some of the paralysis clears up but usually some remains permanently. The permanent partial paralysis results in unequal pull upon extremities and this, when continued over a long period of time, causes distortions of the feet and limbs. The disability of patients who have suffered from infantile paralysis is due first of all to the paralysis and secondly to the distortion which has resulted from long continued paralysis.

To prevent these paralyses and deformities is a difficult and complex problem, though of recent years great strides have been made. It has not been possible to develop a serum or vaccine which will render individuals immune from the disease. The invisibility of the germ has baffled all efforts to study it and to turn it to useful ends. It has been found, however, that one attack of infantile paralysis renders a patient immune to the disease for life, just as does one attack of smallpox or measles. In the blood of such patients are substances which will assist children struggling with the disease to overcome their infection. This knowledge led to the administration of the blood of convalescent patients to patients suffering from the disease. This is the method of treatment by convalescent serum. Its value is still under judgment, but already sufficient experience has accumulated to make it clear that it marks the greatest advance in the treatment of this dread scourge of childhood. You can realize its limitations. The serum cannot be prepared from animals, hence it can never be available in large quantities and always ready. It can only be obtained from human beings who have themselves suffered from the

disease. Moreover, in order to prevent the paralysis which is the dread feature of the disease, it must be administered before paralysis has set in. This means that the disease must be diagnosed in the pre-paralytic stage, and often this is difficult. Nevetheless, the experience in the epidemic in Saskatchewan in 1927, in Winnipeg in 1928 and in Ottawa in 1929 was that the proper administration of convalescent serum resulted in a great diminution in the number of deaths and nearly complete elimination of permanent paralysis. This marks a great advance. To Rotarians who are interested in crippled children, it means that their aid in the many activities which are necessary for the collection of convalescent serum will probably be of more value in the prevention of deformities than would ten times as much effort expended upon children who are already paralysed.

Even when paralysis has established itself, something can be done to prevent deformities. During the early stages the paralysed limbs are tender and painful, and as a result the child wants to lie undisturbed. He will do this in any position which seems most comfortable, and often the position in which he places his limb is one of bad deformity. Long fixation in this position leads to changes which tend to make the position permanent. In the end he recovers from his bed-ridden state with a paralysed limb and one, moreover, which is fixed in a bad and useless position. It would have been just as easy, by means of splints, to have given him the comfort he desired and at the same time to have maintained the limb in a good and useful position. About one-third of the operations which are undertaken upon children who have suffered from infantile paralysis, are for the correction of deformities which could have been prevented by proper attention to the position of the limb during the long period of convalescence. This failure is due largely to the inability of parents to appreciate the great length of time over which painstaking care must be given to the limb.

Prevention of deformities due to infantile paralysis can be attained, therefore, in two ways. First and most important is the administration of convalescent serum before paralysis has appeared. While this is primarily a problem for the public health services of a community, the difficulties to be met are so diverse that the aid of all public spirited organizations would be of the greatest assistance. Patients who have recovered from infantile paralysis must be sought out. Parents must be interviewed and educated to the great value of the service their child can render. Transportation must be provided. Funds must be provided to reimburse the donors of serum. The sympathetic interest of newspapers must be obtained. Perhaps of greatest importance is the education of the public to accept this rather radical public health measure. It lacks the scientific smoothness which characterizes our means of combatting other infectious diseases. It cannot be prepared beforehand to any considerable degree but must

be carried out in the heat of an epidemic. Speed is necessary. For all these reasons, education of the public is important.

The second means of minimizing the deformities of infantile paralysis, namely, proper care during the period of convalescence, also involves public education, particularly education of the parents of the paralysed child. It is hard for them to realize how long and unremitting must be their care of the paralysed limb, and how serious will be the price the child will pay if his limb is not kept in good position.

Tuberculosis

Tuberculosis causes crippled children when it attacks bones and joints. It is singularly prone to do this in children. When tuberculosis has once established itself in a joint, the best that can be done by treatment is to cure the patient of the underlying disease. During this long and tedious process, the joint suffers irreparable damage, so that the patient is left with a stiff joint for life. The prevention of tuberculous disease of joints is, therefore, of obviously greater importance than is its treatment after it is established; since treatment can never restore the joint to full function even though it does succeed in stamping out the tuberculous infection. Tuberculous disease of joints like tuberculous disease elsewhere is due to invasion of the body by tubercle bacilli. If we could prevent children from coming into contact with tubercle bacilli, we could prevent the crippling deformities which result from tuberculous disease of joints.

The tubercle bacilli, with which children are infected, come from two sources. First, from other human beings who are themselves suffering from tuberculosis and second from milk derived from tuberculous cattle. The human source is the more common, but the bovine source is not uncommon; indeed, it occurs more frequently than we suppose. Of the patients admitted to the Children's Hospital suffering from tuberculosis of joints, between 10 per cent and 15 per cent acquired their disease from infected milk. The prevention of this entire group is easy. Pasteurization of milk kills tubercle bacilli and will therefore entirely eliminate that percentage of the disease due to infected milk. Pasteurization of milk is a public health measure which is enforced in all the larger centres. But in many of the smaller centres and in practically the whole of the rural community, there is no pasteurization of milk. It is from these sources that cases of bovine tuberculosis come. All of the above mentioned cases of bovine tuberculosis in the Children's Hospital came from centres outside the City of Toronto, and from communities where milk was not pasteurized. No case of bovine tuberculosis came from the City of Toronto where, as you know, pasteurization of milk has been enforced for many years.

There is another movement which, when completed, will be equally

important in the elimination of bovine tuberculosis. That is the establishment of accredited or tuberculosis-free herds throughout the whole of Canada. Great progress has been made in this direction by the aid of the Federal Department of Agriculture. It is, however, a time consuming and expensive process. In the long run, there is no doubt that it will be the most important means of eliminating bovine tuberculosis. It will not only wipe out that portion of human tuberculosis which arises from this source, but will also do away with all tuberculosis in dairy herds with its great attendant economic loss. But until accredited herds are more widely established, the simple measure of pasteurization should be relied upon to protect human beings from bovine infection.

The fight against tuberculosis has been waged since 1882, when Koch discovered the tubercle bacillus. It has been one of the most difficult battles against disease which has ever been fought. In all that time, no spectacular and certain cure or preventive has been found. The slow improvement which has been obtained is due to more accurate knowledge of the disease, more certain knowledge of its methods of spread and more energetic measures to prevent the contact of uninfected individuals with those who are the source of tubercle bacilli. Practically all the improvement we have obtained is based upon prevention. Probably this will always be our greatest weapon in the fight against tuberculosis. To be most effective, it is necessary that all active cases be recognized and measures taken to prevent their infecting other people. This means early diagnosis of the disease and in this the co-operation of the public is necessary. There has been a tendency on the part of the unfortunate victims to conceal their illness, to their own detriment and that of the public. This sentiment can only be overcome by education.

At the present moment there is glimmering the hope and promise that we soon may be able to render children immune to the disease before they come into dangerous contact with it. Calmette, the Director of the famous Pasteur Institute in Paris, for years has been developing such a method. In its rough outlines, it resembles the means we use to protect patients against smallpox by vaccination or to prevent rabies by the Pasteur treatment. It consists in the administration by mouth of living tubercle bacilli, whose virulence has been lost by years of growth on artificial culture media. This method is still on trial but it gives promise of being a most important means of providing children with powers of defense against this disease, which otherwise they would never attain. In the future it may be our most important means of prevention.

Rickets

Of the remaining causes of crippling deformities, rickets is worthy

of brief mention, since it is a common cause of deformity which is capable of easy and complete prevention. There need be no rickets anywhere in Canada. Rickets is a disease due to lack of sunshine. Sunshine is essential to our well being. For the growing child it is particularly important, since it exerts a profound influence upon the growth of bone. I need not relate to you the multitude of experiments which have led to this conclusion. No fairy tale could be more fantastic or delightful than the story of our search into the action of sunlight. In the absence of sunlight, rickets can be prevented by certain foods. Such foods possess this virtue because they have been exposed to sunshine and have stored up the essential activity of sunshine which prevents rickets. The antirachitic power is present to a remarkable degree in cod liver oil. It is "bottled sunshine".

Rickets varies greatly in its incidence in various parts of the Province. It is much more common in Northern Ontario than in Southern Ontario. This is due to climatic reasons. The longer and more severe winters of Northern Ontario make it difficult for both child and mother to get out of doors. Antirachitic food is somewhat more difficult to obtain there, or, at any rate, is not used as much. As a result, a child born, say in October, is quite apt to see no sunshine except through glass until the following spring. He is then dependent upon proper food for bone forming stimulus. Amongst the foreign population proper food often is not used, and consequently rickets is very frequently seen.

The prevention of rickets is easy. It should be possible to eliminate it completely from Ontario. All that is necessary is the establishment of a few simple rules of child hygiene; the use of certain necessary foods by both mother and child, and the administration of cod liver oil.

The prevention of crippling deformities is a matter of importance. Its successful attainment is of more value than any attempt at cure after disease is established. Most of its problems perhaps belong to the field of medicine; nevertheless, complete success cannot be attained without public education and support and in this every citizen can play a part.

The Modern Hospital for Treatment of Contagious and Infectious Diseases

B. EVAN PARRY

Member Royal Architectural Institute of Canada
Supervising Architect
Department of Pensions and National Health

THE hospitalization incidental to the Quarantine Service rendered it incumbent upon the Federal Department of Health to remodel the hospital buildings at the quarantine stations throughout the Dominion, and the action taken thereon has been more than justified by the increased efficiency in the Service. The Pasteur principle, generally known as the pavilion-cubicle plan, has been adopted.

This plan primarily has its value in being able to treat either one or a number of patients at a minimum expense, inasmuch as the hospital can be operated in part or as a whole. For example, in the ordinary contagious diseases hospital, four different contagious diseases, such as measles, scarlet fever, diphtheria and mumps, would require the use of four wards with four nurses, one for each ward, whereas in the cubicle system only a small section would be in use and administered by only one nurse and attendants, the resultant effect being a considerable saving in cost of the maintenance and upkeep of the hospital.

The standards of principle, practice, planning and equipment in these hospitals is such and by the fact of so many inquiries being received from time to time by the Federal Department of Health, that it is considered that such information may be of value both to the medical practitioners and hospital authorities throughout the Dominion.

The principle is based on the theory of contact infection, which said infection is avoided by strict asepsis. Air infection is disregarded. The patient in the cubicle or ward must be absolutely isolated from any foreign germ either coming from the inside of the hospital or from the outside.

All the staff are very carefully instructed, first, how to protect themselves, and, secondly, how to avoid transmitting infection from one ward to another or from one patient to another. All articles entering the patient's room are aseptic, and all articles going out of the room are immediately sterilized. The patient in isolation is deprived of visitors as nobody except physicians, nurses and ward maids must enter the room, and even they take the utmost precautions and observe all the rules of medical antisepsis. Members of the patient's family are permitted to see the patient through the windows from the outside ver-

andahs, and, further, can converse with him, thereby restoring confidence to both patient and family. These aseptic principles are laborious and require thought and great care. Most of the credit and success of satisfactorily treating cases in this way belongs to the nursing force.

The irregularity of admissions constitutes the chief special problem of the contagious diseases hospitals inasmuch as patients require admission suffering from different contagious diseases, and since it is necessary to give immediate admission, the problem of keeping the different kinds of infection separate is immediately presented. Its solution depends upon:

1. An adequate supply of isolation units;
2. Correct primary diagnosis whenever possible;
3. A rigid antiseptic technique in the admission, nursing and treatment of the patient.

These three conditions if closely observed will largely eliminate cross-infection.

The most fertile source of infection is the patient himself. Therefore it is very important to make a correct entrance diagnosis, to rule out mixed infections, and, if there is any doubt, to isolate the cases until a decision is reached.

If a child is not sick enough to be kept in bed he is prevented from leaving the room by the placement of a removable gate in the doorway which allows him to see out into the hallway through perpendicular slats. A patient once placed in a room is not allowed out of it unless taken out of doors and seated by himself.

Primarily the individual wards are designed for one patient only, but are large enough to hold two beds if emergency arises, which necessitates abandonment of the plan of strict isolation of each individual. When the rooms are thus utilized, care is taken to place children together who not only have the same disease, but also have been previously associated. Examples of such cases are those in which two children of the same family are admitted to the hospital at the same time, or in which a mother accompanies a nursing infant.

When admitting patients the practice is that of taking the patient directly to the incoming patients' ward, bathing him, clothes and valuables being recorded on the back of the admission sheet, the clothes put in a bag, which latter is labelled with the patient's name and taken to the sterilizing room. Dirty clothing is sent to the laundry where it is sterilized before washing. All other articles are placed in the steam sterilizer.

After each individual patient vacates the bathroom it is mopped out with hot water and soap, and the bath tub scrubbed with two per cent creolin solution.

During the hospitalization of the patient the soiled clothing is placed in canvas bags, which are collected daily and taken to the laundry where the clothing is subjected to immersion in boiling water

from forty to sixty minutes. An attendant is specifically detailed for this work, wears a gown, and after handling infected clothing thoroughly washes his hands.

The patient is provided with a thermometer, pus basin, hand basin, ice bag, etc., in fact with such things as will be used constantly and kept in the room as long as the patient occupies it. Bed pans, urinals and other medical and nursing utensils after being taken from the room are placed immediately into a large utensil sterilizer in the utility room. Food dishes and trays when taken from the room are placed in a sterilizer in the diet kitchen, then sterilized by steam and hot water before they are washed. This practice is the means of keeping the diet kitchen uninfected.

Each morning a fresh paper bag is hung by a small strip of adhesive plaster from the shelf. This bag is to receive used dressings, antitoxin containers, throat swabs and everything else which has been used in the room and which can be of no further service. The bags are collected daily, taken to the incinerator and burned.

Inside of each room three gowns and caps are hung, one for the doctor, one for the nurse and one for the ward maid, clean gowns being supplied daily. If the patient or anything in the room is touched, the hands are washed with soap in running hot water and dried on individual towels. The care of the hands is rigidly insisted on.

The rooms all have large immovable glass windows in the partitions between them, so that it is possible for the nurse to see the patients in many rooms at the same time. Also windows are placed beside each door to enable the nurse to be conversant with that which is going on in each room without entering. The beds are placed next to the partition windows and convalescent children soon begin to play with each other through these windows without the danger of any direct contact. Experience has proved that there is more contentment where they can see each other and see what is going on around them without coming in actual contact than there is where they all mingle freely together in a common ward. As practically all quarrels among small children have their origin in the effort which one child makes to take away forcibly from another child some object which it desires for itself, the reason why more happiness exists here is apparent.

Each ward is provided with running water controlled by levers operated by the forearm or knee to avoid contact by hands, and all toilets should be automatically flushed by a lifting seat.

Charts should be kept in the corridors and not in the wards, the reason being that patients are apt to handle them, and at times it has been observed in the case of an intelligent person that by studying the charts recovery has been somewhat retarded.

The lighting switches should be fixed outside the wards.

On the discharge of a patient the bed, furniture, floors, doors, knobs, wash basins and walls within reach are washed with soap and

water. The mattresses are sterilized by steam. Toys, books, etc., are either sterilized or burned after the patient vacates the room. Fumigation is unnecessary. All garbage, soiled dressings, etc., are burned.

It has been computed by the most eminent physicians dealing with contagious diseases on the American continent, where the foregoing principles and practice are observed, that one nurse should be detailed for every four patients.

PLANNING AND CONSTRUCTION

The wards are placed on each side of a common corridor with flushing or isolation passages opening on to the outside verandahs. The flushing corridors give speedy and thorough ventilation of the corridors contiguous to the isolation wards, and permit in the summer time of a current of fresh air being created, thereby keeping the hospital generally cool even during the most torrid heat without disturbance of the patient.

Each unit has running hot and cold water, a droplight attachment so that examination of ear drums can be made in the room, heating radiator and indirect electric light in the ceiling operated by a switch outside the room door.

Where conditions warrant one-storey structures, or even one and a half, wooden construction would appear to be permissible from the point of view of safety of the occupants, but buildings of combustible type even with masonry exterior walls are generally not morally justified in excess of two stories in height. Favourable initial cost, outside of consideration of the length of the construction period, would appear to be the sole argument in favour of non-fireproof hospital buildings, while the advantages with respect of maintenance costs are decidedly in favour of the fireproof type.

Intercommunicating Means

Since the patient is constantly being taken through the corridor and wards, not as he would walk through a hotel, but on a stretcher or more likely on a hospital bed, the width of the corridors must be such that a bed which is 6½ feet long and diagonally 7 feet may be turned within this corridor.

Since most hospital beds are at least 3 feet wide, the projections on the bed making an additional two or three inches, the doors entering the wards and private rooms should be 3 feet 8 inches wide or preferably 4 feet for easy communication.

Sanitation

Where municipal system of sewage is not available, the question of treating feces from contagious cases is of paramount importance. In

such cases without exception a septic tank, which would necessarily have to be constructed under such conditions referred to, should be designed with provision for settling, discharge, overflow and treatment tanks. The infected sewage from the building should discharge into the settling tank, then flowing into the discharge tank and the overflow tank, from which latter tank the effluent is released into a treatment tank periodically, and during retention dosed before final discharge into the disposal area.

The dosing formula for such treatment is as follows:—

100 *parts per million of fluid chloride of lime. Contents of tank to be well stirred and period of exposure, one hour.*

Ventilation

The method of ventilating by fans is the standard procedure recommended by the majority of ventilating engineers. However, ventilating by the use of window inlets and gravity exhausts is now being advocated by many physicians. This latter system of ventilating can be used under a wide variety of weather conditions with excellent results so far as the comfort of the occupants of the ward is concerned. The method avoids the stagnation characteristic of ventilation by windows alone, but does not, of course, accomplish aeration as complete as that characteristic of plenum ventilation. Ample evidence is available that the diminished aeration does not tend to produce discomfort to or injure the health of the occupants.

Some difficulty is experienced from back draughts through the exhaust flues in the use of this system, and because of which fact, shut-off dampers should be installed at the exhaust openings so that they may be partially closed off when such difficulties occur. With the temperature maintained in the neighbourhood of 67° F., a very agreeable impression upon the occupants is produced. Mechanical ventilation, except under special circumstances, is neither desirable nor justifiable, inasmuch as the cost must necessarily add considerably both to the initial charges and to those of maintenance.

Plumbing

All plumbing fixtures should be kept away from walls wherever possible and should be kept off the floors to the greatest possible extent. Wall-hanging fixtures which have the proper support are much to be preferred to those having any floor connection. This would apply particularly to lavatories, water closets and slop hoppers. The object of hanging fixtures is not primarily one of sanitation, but one of expedience in keeping the hospital clean with the least expenditure of time and labour. Bath tubs should be built into the floor at their base and as far as possible be free on two or three sides, so that patients can be readily handled.

Fly and Mosquito Screens

The screening of the hospital should be considered as part of the general aesthetic problem in the planning of the building. Local structural conditions will vary the type of screen; therefore, wherever possible the screening of the hospital should be planned by the architect. The minimum requirement is that screens be placed with an eye to local and sanitary conditions and according to the distribution of insect-inviting material. Toilets come first in the matter of screening, and hardly less important are kitchens, laboratories, dining rooms, wards, operating rooms and laundries.

Interior Finish

The interior finish of the structure is made as simple and plain as possible with few mouldings and projections. All woodwork except doors and floorings can be of soft wood finished in white or ivory enamel except in the administration building where coloured enamel in soft tones may be used. Birch doors of compound construction entirely smooth and without panels, finished mahogany, contrasting well with the painted walls and trim, are recommended. All walls, partition walls and ceilings should be finished in hard cement plaster, painted with enamel and finished with gloss in the wards and stippled or flat in the other buildings. All horizontal and vertical angles and corners should be slightly rounded, including the finish around the window openings. The finish of the floors should be tile for kitchens, toilets and utilities; hardwood for wards, and cork lino or battleship linoleum for corridors.

Electric Bell and Signalling System

Electric bells should be provided for doors and for signalling between the various offices, in addition to which there should be installed a signalling system in the wards calling the nurse-in-charge to any bed or room. In this system it is necessary to instal a group of signals near each attendant's station, and, further, to provide a button attached to a cord within the reach of each patient, upon the pressing of which a proper signal is operated indicating the location of the patient needing attention. The signal is so arranged that it cannot be replaced except by the means of a button located near the bed from which the call is sent, thus insuring the necessary attention by the nurse.

Equipment

Autopsy Room:

One table, one sink, one slate shelf 18 inches wide.

Morgue:

One slate slab of convenient height.

Minor Operation Room:

One lavatory basin, one sterilizer large enough to take basins, one small autoclave, one small sink, one centre table, one instrument table with glass top, one instrument cabinet, one small table with stool.

Laboratory Equipment:

One coagulator, one hot-air sterilizer, one small Barnstead still, one Arnold sterilizer, one gas incubator, one cabinet for specimens and supplies, one sink for washing glass, etc., three table sinks, one refrigerator, one small centrifuge.

Dispensary:

One sink, cabinets and wall shelving, one desk, one record cabinet.

Nurses' Station:

Nurses' desk, enamelled steel with drawers and with two side pedestals, one with grooves into which the chart boards can be slid, and the other pedestal with shelves for dressing trays set up all ready for immediate use. Cabinet for medicines and routine supplies. This cabinet should be made deep enough to hold flasks and dressings and should have doors with locks. Receptacle for portable desk lamp and pilot light of the signalling system. This should be placed directly before the nurse, a little distance above the desk where it can be plainly seen; outlet for exterior and interior telephones and chair, which latter should be of wood.

Convalescent Ward Toilets:

One small table, one lavatory basin, hot and cold, two w.c. toilets, racks for bed pans and urine bottles, one slop hopper with standing water, one sterilizer, one bath tub.

Diet Kitchen:

Locker, refrigerator, counter, cupboard, bread locker, tray shelves, drain boards, sink, marble shelf, dryer, gas stove, steam table, broom closet, hood, clock, electric point, gas point, radiator, switch, vent.

Kitchen Service:

One range, two steam kettles, one coffee urn, two large sinks placed on side-walls, one large work-table in centre, dishwasher. Sterilizer not required as all the dishes used by patients are sterilized in the diet kitchens.

Convalescent Utility Room:

One slop hopper, one toilet, one lavatory basin, one broom and utility cupboard.

General Utility Room:

One large sterilizer for bed pans and urinals, one rack for bed pans and urinals fixed over the radiators, one slop hopper, one lavatory basin, one blanket warmer.

It is to be noted that if the food for distribution is to be conveyed in bulk from a central kitchen, cooking equipment would not be required in the diet kitchens, except two heating rings for heating liquids, as the food could be conveyed in thermos food container carriages from the main kitchen to the diet kitchens and then distributed to the bedside.

The plan of the administration building in connection with this standard type of hospital presents a variation from the usual practice in that, for reasons chiefly economic, it is adapted to serve as a combined administration building and nursing home.

Anti-Tuberculosis Programmes in England and the Continent*

DR. F. G. FERGUSON

Director of Medical Services, Saskatchewan Anti-Tuberculosis League

DURING last autumn a party of thirty-five sanatorium superintendents, two of whom were from Saskatchewan, had, through the assistance of the anti-tuberculosis organizations and the Sun Life Insurance Company, the privilege of making a rapid survey of anti-tuberculosis efforts in England, France, Switzerland, and Italy. In a survey of old world conditions to-day, we see our problems of the future.

In a new country like Saskatchewan, with rich natural resources, simple rural occupations, sparse population, and ample employment, the tuberculosis problem is relatively simple.

Take human infection, for example. The very sparseness of population reduces contact, and lessens danger. As regards the bovine source of infection, cattle, moved into new stables in a new country, or running out a great part of the year, suffer less from tuberculosis. Apart from our cities, which are already almost free, cattle here, in rural areas, show from 2 per cent to 4 per cent infected with tuberculosis. In Europe, it has been found that at least from 20 per cent to 40 per cent of the cattle are infected. Their problem thus becomes not an educational one, but rather an economic one. The process of eliminating tuberculosis among cattle, a problem which can be practically accomplished here in a few years, as is being done in Prince Edward Island, in Europe is an economic undertaking which must be spread over a generation on account of permanent buildings which must be renovated, and the high percentage of cattle which must be replaced.

Again, looking at the treatment of tuberculosis, this involves not merely sanatorium and hospital accommodation, clinics and dispensaries, and travelling consultants, as in Saskatchewan, but also a means of livelihood and a house to live in on completion of treatment. In Europe, where there are thousands of unemployed, to be suffering from a serious disease places the patient among the least qualified of the unemployed. Hence the reluctance to be labelled "tuberculous," resulting in late diagnosis, and the urgency for occupational colonies, such as that developed by Varrier Jones at Papworth.

**Paper read at the Fourth Annual Convention of the Saskatchewan Health Officials' Association at Moose Jaw, on October 3rd, 1929.*

When the disabled one in Europe secures employment, he faces housing shortage. The fact that poor people rent poor houses, endure poor living conditions, and receive a minimum wage, leads to relapses. Consequently, the anti-tuberculosis associations there are tremendously interested in eliminating slum areas and providing sanitary living conditions for the poor, from which class comes the crop of disabled tuberculous year after year.

The importance of living conditions is now so widely recognized that the health departments control building permits in all progressive urban communities, whether for housing or industries. The health departments have the power to insist on sanitary standards; they have the power to condemn old and unsanitary dwellings. For such condemned dwellings in certain areas tenants can no longer be compelled to pay rents, and the property becomes practically worthless until regulations are complied with.

PREDISPOSING INDUSTRIES

Anti-tuberculosis organizations, health departments, and governments are actively engaged in improving and controlling all dusty occupations which predispose to lung disease, and are spending freely on the study of mining operations where silicosis of the lungs is produced, and tuberculosis developing in certain mining occupations is now recognized by compensation boards as attributable to silicosis, and the patient is entitled to compensation.

For the past three years South Africa has had a scientific commission studying this problem, supported by mine owners, the government, and assisted by the Imperial government. Western Canada is now rejoicing in the fact that this country will be the successor to South Africa in the mining industry of quartz type. If this be so, we will be successors to their problem of tuberculosis of silicotic origin. The anti-tuberculosis forces of Western Canada must be on the alert so as to control this predisposing cause of tuberculosis as far as possible, and insist on responsibility for prevention being placed at the very inception.

As regards treatment facilities, there was everywhere much to learn in detail, but after a careful survey it appears that the general plan of our institutions is well adapted to our social, climatic, and economic conditions, and the institution at Prince Albert embodies in its plan the most modern ideas of efficiency in treatment and economy in administration.

So far as equipment is concerned, in Europe greater use has been made of carbon-arc light therapy, and I believe we will do well to follow their lead. A carbon-arc unit will be installed in the equipment for the treatment of children at Prince Albert, and one at Fort Qu'Appelle.

Regarding diagnostic clinic facilities, each country and many communities have developed their own ideas, suited to meet local social or economic needs. In England, with state insurance, high taxes and a tuberculosis death-rate more than twice that of Saskatchewan, the plan is designed with all eyes focused on taxes and the cost of unemployment, disability, and institutional treatment. Diagnostic and treatment dispensaries give immediate service and supervision to all at a price, and as yet they do not pretend to be able to give institutional treatment to all tuberculous sick. In a word they would appear to be attacking the problem from the side of its predisposing causes, stressing general health, bad housing, and dangerous employment. They have not the isolation facilities, nor do they appear to consider that they can at present afford to attack the problem as an infectious disease.

France has even a higher death-rate, more than three times that in Saskatchewan, presenting similar social and economic problems to those in England, but they appear to be less impressed by the importance of predisposing causes and more inclined to attack tuberculosis as an infectious disease. Hence the interest in the prophylactic vaccination against tuberculosis by Calmette's method (nearly 100,000 children have received this preventive treatment) and the "Replacement Familial" colonies, where the uninfected children of tuberculous parents are being reared under sanitary conditions in wholesome surroundings. In France interest is focused on the disease as an infection, and on the safeguarding of children, the predisposing factors among adults receiving such consideration as they can afford, the isolation of the tuberculous sick in sanatoria or hospitals being beyond the reach of the taxpayer at present, although they are making rapid strides and receive a generous proportion of voluntary assistance.

The foregoing is a brief outline of the features of the anti-tuberculosis efforts of two great countries in Europe as they have impressed me, and in comparison you will agree that the problem in Saskatchewan appears simple and extremely hopeful.

The eradication of bovine tuberculosis, beyond economic possibility in England and France for perhaps a generation, can here be effected by an educational campaign of a few years' duration, and the taxpayer would not feel the burden. With our low tuberculosis death-rate, free treatment, and increased sanatorium accommodation, the isolation and treatment of all tuberculous sick appear to be within our economic grasp so that we can at once attack both the infection and its predisposing causes.

Facilities are gradually developing under the aegis of the Daughters of the Empire for the care of uninfected infants of tuberculous mothers, and for domestic assistance to needy families while tuberculous mothers are under treatment. The plan has been developed here for the examination and observation of contacts of active cases by family physicians

and health officers making use of clinics and consultants and health nurses when necessary.

The Indian Reserves, under study by your staff through the assistance of the National Research Council, is a suitable field well prepared for prophylactic vaccination and for a study of the effect of intensive application of prevention by attacking predisposing causes.

As regards care for the health of pre-school and school children, although a start has been made by the Provincial Health Department and the health departments of the larger cities, this field is practically untouched in Saskatchewan, and we are far behind progressive communities in Europe; but even more in regard to the importance of education for healthful housing and working conditions in the prevention of tuberculosis we have much to learn from the old world.

The Public Health Nurse—Her Work in Relation to Maternal Mortality*

M. S. TAYLOR, REG.N.

Victorian Order of Nurses, Regina

THE nurse in public health work has become essential in teaching health in homes, clinics, schools and in industrial establishments.

Public health nurses are deeply involved in our present community programmes for maternal care. One cannot consider the nurse in public health as an isolated worker apart from nurses engaged in other forms of nursing. Like all matters forced into the modern programme for public health, the matter of providing a safe attendant for normal child-birth demands attention. When one has reached this point certain questions arise. What type of attendant ought that person to be? How shall such attendants be educated, registered and controlled? What will be the effect upon our present organization for public health and upon the private practice of dcotors? How will the cost of this service be provided?

Following immediately upon the recognition that maternal care is a part of the public health programme comes the question of the reduction of infant mortality in the very early weeks of life. It is hard to realize that thousands of women are delivered each year in identically the same careless and ignorant fashion as in mediæval times. The ideal towards which we as doctors and nurses are working is that all women shall be supervised during pregnancy and provided with an attendant capable of conducting a delivery. We do not know how the cost of the medical care is to be defrayed in the future, but the bill for health is unpaid to-day; and the fact that it is unpaid, that we cannot put into effect those means now known to produce health, has stirred us to study and investigate so that perhaps we may be more ready in the future to answer this question. To-day doctors and nurses are concerned with changing the perspective of schools of medicine and nursing so that the idea of health and the prevention of disease will become the basis of all work with patients and their families.

The beginning of the cycle of life—maternal care—has been terribly neglected. Not only is there appalling loss of life, but the ill-health resulting from poor care in pregnancy, and at confinement, is no less shocking because there is little statistical evidence to show how extensive it is. Quoting from a recent report of the Scottish Departmental Committee on Puerperal Morbidity and Mortality, the situation is clearly set forth: "The view has been put before us that maternal

*Presented at the Fourth Annual Convention of Saskatchewan Health Officials' Association at Moose Jaw, October 3rd, 1929.

death is in some degree a tax which the woman, as an individual, and the community in general, must bear as a condition of fitness for survival." This may be so, but maternal mortality is reducible. Intercurrent diseases may have their special dangers provided for; the toxemias and especially eclampsia can usually be foreseen and avoided; hæmorrhages may have their dangers diminished by early supervision; shock and exhaustion may be avoided by the early discovery of pelvic disproportion or the correction of malpositions; and the idea of preventability is so interwoven with the history of sepsis that the whisper of the word evokes at once the suggestion of failure.

The association of puerperal mortality with ill-health during pregnancy appears to be even greater than would be anticipated. In investigating an unselected series of deaths one witness found two-thirds of the pregnancies associated with definite ill-health. In a similar investigation another witness found the death-rate following unhealthy pregnancies five times as high as for healthy pregnancies. These facts again throw into relief the paramount importance of ante-natal care. In the age group of women of 15 to 45 years of age, which is considered the child-bearing period, there are in the United States more deaths from accidents and diseases due to child-bearing than from any other cause except tuberculosis.

The pre-natal period is not only important for the mother but for the child. It is the time of greatest danger so far as its chance of existing at all is concerned, and has within it the possibility of making a lasting impression whether for good or ill upon its physical welfare for its entire life, however long it may be. In a recent report on maternal mortality, the statement is made that of 237,199 births in Canada, there were 1,532 maternal deaths, giving a maternal mortality rate of 6.4 per 1,000 live births. Of these 1,532, 1,302 had no pre-natal care; that is, only 230 cases or 15 per cent had pre-natal care. Last year in Regina 91 babies were born without medical attention. Maternal mortality has become a leading problem of preventive medicine and public health, and not only the profession but the general public are demanding action to reduce it.

"The infant soldier" (so-called by Prof. W. W. Chipman) meets his death at the opening battle of life because of ante-natal or natal condition, not because of his inherent unfitness but because of our unfitness to take care of his mother and him. "Take care of the mother and she will take care of the baby."

Are we willing to take care of the mother? She doesn't want to go to the doctor at the beginning of pregnancy. Can we help her change her mind? Can we explain to her what we have learned so that she will take our word for it? Will she adapt herself to new ways of saving herself in child-bearing? Are we going to take the time and trouble to explain all this to the husband and father and win him to our way of thinking? Without his aid, we shall try in vain to save the mother.

The answer to these questions is "yes," for after all cannot a great deal be accomplished by education and prevention? No one is better equipped to inform the mothers and their husbands than the public health nurse. Some of the best pre-natal visits I have made have been when the husband has been at home. The nurse who goes into the home, rolls up her sleeves and actually does something for that patient, drops many a seed that will grow and grow.

We are convinced that every pregnant woman should be encouraged at an early date to put herself under the supervision of a medical attendant, so that her capacity to pass normally through pregnancy and labour may be determined. If necessary this supervision should be provided by the public health authority. That the properly trained midwife with adequate supervision, is a tremendous factor in lowering the infant and mortality rate, is an accepted fact. I should like to mention the untrained midwife, also the one who may have had her training in midwifery and is not allowed to practise by the law, but who goes her own way. There is no doubt that such should be restrained.

It has been my experience recently on two occasions to visit expectant mothers in whose homes I had previously given nursing care. These mothers did not intend to have doctors but wanted me to go in after confinement and give care. When they realized that I did not go in, except where a doctor attended, they argued that it was too expensive. I cannot help but feel that these women thought a little bit of what I told them and that in this way the public health nurse will be helpful in eliminating untrained attendants at such important times.

Just a few days ago I came across an expectant mother who had not even thought of preparing for her baby which was expected at an early date. She was a foreigner, spoke very little English and had no money. She, no doubt, would be one of the number that call a doctor only when labour starts, or perhaps have an unqualified person. After two visits to her she has at last consented to see a doctor and the Victorian Order of Nurses carry her as a free case. This type of thing happens frequently in the experience of a public health nurse. When such a mother expects her next baby she will think of the doctor first.

How often have the early symptoms of serious trouble been detected by the nurse who has advised the patient to report to her doctor immediately! Also in the follow-up visits how grateful the patient is to have the nurse call in to interpret the doctor's orders and to help her carry them out. Only too often is medical attention forestalled because of economic reasons. How this may be overcome is a much-discussed question. The public health nurse, however, is a tremendous factor in educating mothers as to the value of pre-natal care and the necessity for medical supervision throughout pregnancy. In pre-natal, post-partum and post-natal care, she is also an important factor and, through pre-natal classes, nutrition classes, parent-group classes, much good can be accomplished in making healthier, better mothers.

Editorials

A NEW MENINGOCOCCUS-LIKE ORGANISM FROM EPIDEMIC MENINGITIS

THERE is renewed interest in the disease cerebro-spinal meningitis. Bacteriologists in various centres in America have studied intensively the micro-organisms isolated from cases with the particular end in view of determining the type or group into which they fall. The importance of these investigations is emphasized by the fact that certain epidemics have been characterised by inordinately high mortality despite the use of antiserum. The question naturally arises whether or not the serum used for treatment possessed specific antibodies in sufficient concentration to be effective against the particular infecting strain. The method of determining the potency of an anti-meningococcus serum is commonly carried out by agglutination. Hence, one must establish whether the therapeutic serum will satisfactorily agglutinate the particular infecting strain in question. If not, the serum is deemed inadequate and such strain or strains which are not agglutinated are incorporated in the vaccine used for the immunization of horses. The whole question is further complicated by the fact, as reported by Branham[1] and also by Cameron[2], that strains of Gram-negative cocci from Chicago reported to have been isolated from the spinal canal are definitely not meningococci. Branham calls them *Neisseria flavescens*. Fourteen such strains were investigated and all fall into one group characterized by the production of yellow pigment and failure to produce acid when grown in medium containing dextrose or maltose. The mortality of the cases from which this micro-organism was isolated was thirty per cent. If this coccus, as stated, was actually isolated from the spinal canal from cases of epidemic cerebro-spinal meningitis one is forced to the conclusion that either a hitherto undescribed etiologic agent may be involved or that a new disease indistinguishable from epidemic cerebro-spinal meningitis exists.

[1] *Branham, Public Health Reports, Vol. 45, No. 16, April 18, 1930.*

[2] *Cameron. Canadian Public Health Journal, Vol. XXI., No. 6.*

A MARK OF PROGRESS IN INDUSTRIAL MEDICINE

THE importance of the recognition of cases of industrial poisoning has been emphasized by experience under Workmen's Compensation, where constant difficulty arises due to the frequent lack of specific evidences of poisoning.

Probably more investigation and research into industrial poisonings have been conducted in the last ten years than took place for many years previously. Much of this work has been directed to the indications pointing to the earliest effects of exposure to dangerous substances in industry, with a view to *preventing* disability, but even the late manifestations are frequently not specific, so that a good deal of difference of opinion and confusion exist regarding what constitutes poisoning.

This situation is reflected in the formation of committees on some of the more important industrial diseases, such as lead poisoning and silicosis, by the Industrial Hygiene Section of the American Public Health Association. Their purpose is to report upon standards for diagnosis, treatment and control.

The Second Annual Report of the Committee on Lead Poisoning has just been published. Reference is made to it elsewhere in this issue.

Such activities represent response to a demand usually from industry itself, for the solution of medical problems in or arising out of industry, directed not primarily to treatment, but to diagnosis and control of ill-health.

As recently as 1926, a representative group of employers, the National Safety Council, initiated a careful and thorough investigation into the hazards to health of spray-painting. It is fitting that the medical profession should itself recognize industry's medical problems and attempt to meet them.

INDUSTRIAL HYGIENE

F. G. PEDLEY, B.A., M.B., D.P.H.; J. G. CUNNINGHAM, B.A., M.B., D.P.H

THE HEALTH OF WORKERS IN DUSTY TRADES

Public Health Bulletin No. 187. *U.S.P.H.S., Washington,* 1929.

II. Exposure to Siliceous Dust (Granite Industry)

R. VANCE WARD, M.D.

In April, 1929, we drew attention in these columns to the study of the Health of Workers in Dusty Trades, which has been undertaken by the United States Public Health Service, and described at some length the results of the study of workers exposed to calcium dust in the Portland Cement industry.

Continuing the study the Department has published the findings among workers exposed to silica dust in the granite industry of Barre, Vermont.

As in the previous study the method consisted of the following procedures:

(*a*) A record of the nature and severity of disabling illness, causing absence of two days or longer.

(*b*) A general physical examination of the workers under observation, with special examinations (X-ray and sputum examinations) to determine the prevalence of specific diseases of the respiratory system and the lung pathology resulting from exposure to silica dust.

(*c*) Study of the occupational environment, consisting of dust determinations of the air breathed by workers in the various occupational groups.

In addition the Department in this case investigated:

(*d*) Occupational mortality statistics.

(*e*) Autopsy findings.

It is well to point out at the outset that in probably no other industry is the working force so stable as it is in the granite industry, and therefore in most cases the number of years of working life is the same as the number of years of exposure to siliceous dust.

On the basis of exposure to dust the workers were divided into four groups:

A. Hand pneumatic-tool cutters. 614 persons, exposed to an average of about 60 million particles per cubic foot of air.

B. All other occupational groups exposed to more than average plant dustiness: The groups contained 104 persons in occupations where the dustiness averaged between 27 and 44 million particles.

C. Those occupational groups consisting of 146 persons exposed to average plant dustiness (20 million particles).

D. Those occupational groups exposed to less than average plant dustiness. This group contained 108 persons in occupations where the dustiness averaged between three and nine million particles.

Results of the Study

The fact emphasized by this study which overshadows all others in significance is the tremendous liability to silicosis complicated by tuberculosis among the granite workers. In the *A.* group the first case of silicosis appeared after two years of service, and after four years, all in this group seemed to have developed at least an early case. In the same dust-count group the first case of moderately advanced silicosis appeared after five years of service, and by nine years about ninety per cent had advanced to this stage.

The liability to tuberculosis did not become manifest until after a long period of service, usually twenty years or more, and there was a sharp correlation between the time of exposure to the dust and the prevalence of tuberculosis. There was also a close relationship between the extent of dust exposure and the occurrence of silicosis and tuberculosis.

The tuberculosis complicating silicosis is peculiar in that the lesion is usually basal instead of apical and is *invariably fatal.* No case of recovery or arrest was observed. There seems to be no tendency to recovery from silicosis among workers who have developed a case of moderate severity and who then leave their dusty occupation. No death from silicosis *per se* was observed, tuberculosis always intervening in the fatal cases.

There has apparently been a tremendous increase in the morbidity and mortality from tuberculosis since the use of hand pneumatic tools became general in the early years of the present century.

The remedy is the provision of adequate local exhaust ventilation to reduce the dust content of the air to a point below the danger limit, which, judging by the results obtained lies somewhere between 9 and 20 million particles. The local exhaust devices at present in use are most inadequate.

PUBLIC HEALTH NURSING

RUBY M. SIMPSON, Reg.N., and FLORENCE H. M. EMORY, Reg.N.

SPECIAL CLASSES AS A FACTOR IN HEALTH

MARY MILLMAN, Reg.N.

THE health value, both physical and mental, of special classes in the schools for the atypical child has been well demonstrated and constantly the demand for an increase in the classes grows. At the present time there are forest schools, open-air, sight-saving, speech-correction, lip-reading, orthopedic and extra-mural classes for the physically handicapped, and training classes and vocational schools for the mentally handicapped.

The first to be organized were the forest schools and open-air classes for the malnourished, the tuberculosis contact, the nervous child. Toronto has two forest schools, one in the east and one in the west of the city, which are open the six summer months. Here, from 9 a.m. to 4.30

p.m. daily, about 500 children study and play, eat and sleep in the open air, with a time-table definitely planned to promote their health. The marked improvement in both the physical and mental condition of these children has made both school and health authorities unanimous in their decision to continue these classes. The open-air classes conducted from September to June on the top floor of two of the schools, one public and one separate, accommodate 150 children. Here the programme and results are comparable with those of the forest schools.

For the child with defective sight whose condition is too severe for him to carry on in the ordinary grade, or whose sight would become worse if the work of the ordinary grade were continued, there are sight-saving classes. In Toronto there are three for pupils from junior first to junior fourth, and a fourth one for entrance class and the two first forms of high school. An eye specialist sees each child regularly and prescribes the amount of close work each may do. The room is decorated and furnished with non-glare materials. All the books, paper, pencils and chalk are specially prepared with a view to minimize eye-strain. Handicrafts, typing, sewing and other manual work which will not fatigue the eyes are taught. It is encouraging to watch the appearance of strain and discouragement leave the child as he is transferred from the ordinary grade and becomes adjusted to the new class where his individual needs are studied, and also to consider what this education and saving of sight are going to mean in the future.

The opening of classes for the totally deaf in the public schools of Toronto has meant a complete change in the life of the deaf child. No longer must he leave his own home, live in an institution and then readjust himself to home and community life upon graduation. Children may enter these classes at the age of six and remain until 16 or 18 years of age. In the meantime they play at recess with children with ordinary hearing and have the ordinary home contacts. There are also full-time and semi-weekly classes for the "hard of hearing", who need lip-reading either to help their residue of hearing or to prepare them for the time when their hearing will have gone.

Classes for speech-correction, for stammering, nasality and baby substitutions are conducted semi-weekly in various schools. The value of these classes in relieving the strain of constantly trying to hear, or of the stress which accompanies stammering, or the self-consciousness and sense of inferiority which trouble the child who can not pronounce sounds properly, is incalculable.

The orthopædic class provides for the children who are physically crippled:—those who have suffered from poliomyelitis, spastic paralysis or tuberculous joints. The first attempt to teach these children was individual instruction in the home by means of extra-mural teachers;—a step forward,—but they were missing the contacts with other children. In Toronto four large buses call for the 60 children in these classes whose grades run from junior first to second form high school. The classes are in

an ordinary school, but runways have been built, wheel chairs and other equipment provided to facilitate the transfer from bus to classroom and from classroom to gymnasium or dining-room. Occupational therapy is carried on under the direction of a surgeon appointed by the University of Toronto and a teacher from the Board of Education. The work is done by the occupational therapy students of the University. As some of the children are too crippled to give themselves any care, a matron and assistant are employed who also prepare and serve a noon meal and in some cases actually feed the children. The lunch is paid for by each child. The children are very happy and in some cases regret when the improvement in their disability allows them to return to the ordinary grade.

Extra-mural teaching is provided twice weekly for children who are unable to attend any class. These are chiefly cardiac cases, chorea cases, those suspected of having tuberculosis and acute orthopædic and surgical conditions.

Training classes for the mentally retarded are constantly growing in number. They serve two purposes,—the giving of the retarded children the education they can grasp, thus somewhat fitting them for future adult life, and in removing them from the ordinary grade where they are often a retarding or even a disturbing factor. Vocational schools for these pupils after they reach the age of thirteen, are doing much to help them become more satisfactory citizens by fitting them for trades or other forms of employment possible to their limitations.

Although these classes are offering much to the atypical child, the peak of their usefulness is by no means reached. At present they are adapted particularly to the child handicapped physically or mentally and not to the child handicapped both physically and mentally. The dull normal child and the exceptionally bright child have not yet had their due of consideration. And the link between the teaching of the school and the particular type of employment possible to the child after graduation can be strengthened.

EPIDEMIOLOGY AND VITAL STATISTICS

F. W. JACKSON, M.D., D.P.H., AND NEIL E. MCKINNON, M.B.

POLIOMYELITIS IMMUNITY IN URBAN AND RURAL COMMUNITIES

AYCOCK and Kramer have published* evidence that the serum of many people who give no history of having had poliomyelitis neutralizes poliomyelitis virus *in vitro* and that this property is found more often in adult groups than in the younger —and more often in an urban population than rural.

The sera from 46 persons in urban environment and 29 persons in rural environment were each mixed *in vitro* with an appropriate amount of active virus emulsion and, after allowing two hours at 37°C. and over night in the ice chest to ensure union of the virus and antibody, 1 to 1.5 cc. of each mixture was injected intra-

Journal of Preventive Medicine, Vol. 4, No. 3.

cerebrally into monkeys (Macacus rhesus). These neutralization tests were adequately controlled with human convalescent serum, normal monkey serum, convalescent monkey serum and immune monkey serum (from monkeys completely recovered which had been repeatedly tested for immunity by intracerebral inoculation of virus). In the authors' own words: "No attempt was made to utilize the minimum infecting dose of the virus, as the test lacks the refinement of titration employed in more exact procedures. It was felt that the results with large doses of virus would give a conservative indication of the extent of immunity. We therefore used virus in amounts found infective when diluted at least 100 times."

This experiment was carried out on a magnitude never before attempted and such that permits of statistical analysis not possible with the previous data. While a certain number of inevitable irregularities occurred during the progress of the experiment the general constancy of the results is good evidence of their value. The table below summarizes the findings:

This is valuable evidence supporting the hypothesis that poliomyelitis is a wide-spread infection producing disease in few and immunity in many. From the similarity of the findings to those in diphtheria,—in which we can measure immunity by the relatively simple process of skin testing,—one concludes that there is a similar means of spread—namely, personal contact.

IMMUNITY TO POLIOMYELITIS IN A SOUTHERN POPULATION

In the same number of the *Journal,* Aycock and Kramer report their results of testing the serum of 21 adults with no history of poliomyelitis, from Atlanta, Georgia, against active virus emulsions. Eighteen of these sera definitely neutralized the virus, one had some neutralizing power and two failed to neutralize. The immunity to poliomyelitis is, therefore, apparently, as wide-spread in the warmer climate as it is in the cooler climate, although the incidence of the disease is much less in the former. This again is a finding which, in many respects, is similar to that of diphtheria, and is additional evidence that the spread of poliomyelitis is very similar to that of other communicable diseases of childhood. With the great amount of experimental

Neutralization test for immunity to poliomyelitis with "normal" human serums: by age groups

Age	Urban Number	Rural Number	Urban Per cent immune	Urban Per cent non-immune	Rural Per cent immune	Rural Per cent non-immune
Adult	8	5	87.5	12.5	40.0	60.0
15-19	7	4	85.7	14.3	50.0	50.0
10-14	9	8	66.7	33.3	25.0	75.0
5-9	10	8	80.0	20.0	0	100.0
0-4	12	4	41.7	58.3	0	100.0
Total	46	29	69.6	30.4	20.7	79.3

work being carried out on this continent, coupled with the quickened interest of the general physician, there is little doubt that we can look forward soon to the collection of epidemiological and experimental data which will establish the incubation period, the period of infectivity, the influences of various factors in the spread, and possibly a reasonable explanation—size of dose, portal of entry, non-specific resistance, etc.,—of the varying severity in different individuals.

REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES IN CANADA* BY PROVINCES—MAY, 1930

Disease	P.E.I.	Nova Scotia	New Bruns	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Diphtheria	3	21	4	146	237	42	18	14	20
Scarlet Fever	13	75	30	419	881	63	58	100	51
Measles	42	13	1	575	1,883	107	82	15	82
Whooping Cough	2	26	—	149	231	143	58	38	418
German Measles	—	1	—	215	994	†	1	1	22
Mumps	—	8	1	412	169	191	58	16	114
Smallpox	—	—	—	1	94	10	60	1	8
Cerebrospinal Meningitis	—	1	1	8	14	—	—	3	2
Anterior Poliomyelitis	—	—	—	—	2	—	—	2	5
Typhoid Fever	—	1	5	63	36	1	6	1	5

*Data furnished by the Dominion Bureau of Statistics, Ottawa.
†Not reportable.

NATIONAL VOLUNTARY HEALTH AGENCIES

RUBY E. HAMILTON, Reg.N.

CANADIAN SOCIAL HYGIENE COUNCIL

RADIO TALKS

THIRTY radio talks, the majority prepared with a view to educating the general public as regards the value of preventive medicine, are now being prepared by the Canadian Social Hygiene Council. They will be delivered this autumn and winter over a number of Canadian radio stations scattered from coast to coast.

This will be the third consecutive winter in which the Council has used radio to preach preventive medicine. The 30 talks of this season will aggregate about 45,000 words. Such subjects as The Germ Theory of Disease, Vaccination Against Smallpox, The Toxoid Treatment Against Diphtheria, Vaccination Against Scarlet Fever, Maternal Mortality, Infant Mortality, will be discussed.

The two-year test to which the Council has submitted radio broadcasting has proven to the complete satisfaction of all concerned the importance of this means of attracting public attention. The head office in Toronto receives hundreds of requests for information and literature from

listeners-in on one station alone, CKCL, Toronto. The Council has a number of pamphlets on hand, dealing with the various topics discussed, and at the end of each talk, these are offered to all in the unseen audience who care to write for them.

It is believed that the Council's activities in this regard constitute one of the largest radio health-programmes on the air.

CORRESPONDENCE

Cancer and Tuberculosis

Response to Dr. Miller's Comment

TO THE EDITOR:

IN the April number of your Journal was an article on the Cancer-Tuberculosis question by Dr. James Miller of Queen's University, Kingston, ably setting forth certain aspects of this subject. A careful reading, to me, added a still further indication that there is something of value in the idea set forth in my article on this question, which ought to be studied carefully in the laboratory, for if there is some chemical or physical normal midline which, with sufficient variation to the one side produces a basis that in conjunction with other factors makes possible the flourishing of tuberculosis in the system, and *vice versa,* to the other side, for cancer—it holds out a tempting therapeutic possibility, that ought not to be cast aside without at least some experimental trial.

The query raised is not of two "mutually antagonistic diseases", but of two diseases which flourish under abnormal but varying conditions, with evidence of differences in fields as wide apart as certain aspects of the biological, chemical, physical, histological and other spheres.

Are there any recorded observations to parallel this in any other two conditions? If there are, it is just as important that they should be studied.

Morris and Lamb's figures as quoted by Professor Miller with only one active tuberculosis case in 23 cancers accentuates this point brought out by Pearl with 1 case in 8, and that in a tissue (lung) favourable to tuberculosis and relatively rare with primary cancer.

Cherry's statement that cancer attacks in later life those who in early life had overcome tuberculosis—that acquired resistance to tuberculosis is a predisposing cause of cancer, if true, is making the same claim as Pearl, stated in another way, for the conditions securing cure have thrown off the conditions favourable to tuberculosis and possibly approached nearer to those conditions favourable to cancer in the system generally or locally.

Ewing's statement that tuberculosis is the chief etiological factor in cancer, and Miller's observation that tuberculosis is common before age of 40 years and is on the decline, while cancer is common after 40 and on the increase, may both be used as strong arguments, not only that the one waxes where the other wanes, but that the very fact that tuberculosis has been overcome, carries with it the fact

that the conditions favourable to tuberculosis have been superseded by conditions favourable to cancer and unfavourable to tuberculosis.

The idea to express is not that tuberculosis make conditions more favourable to cancer, but that the system overcoming and altering the conditions favourable to tuberculosis has made conditions less unfavourable for cancer.

Dr. Miller concludes that of two groups of commentators—one claiming that active tuberculosis disease is antagonistic to carcinoma and the other that tuberculosis is one of the causes of malignancy—both cannot be right. Why not? If it be granted that tuberculosis flourishes under systematic conditions which are unfavourable to cancer, and the system then overcomes the tuberculosis, is it not at least reasonable to suppose that the process of overcoming tuberculosis, may have thereby, not only produced conditions unfavourable to tuberculosis, but brought about reverse conditions which may be either favourable to cancer, or, at least, less unfavourable to its development.

Dr. Miller in his last sentence seems to throw away his strongest argument, as one might naturally conclude that cancer was likely to increase after 40 because the decrease in the number dying of tuberculosis before that age allowed more to live to the cancer age. Relative to this, however, Dr. Schereschewsky of the United States Public Health Service has statistically shown that the increase in cancer has more significance than can be accounted for by the decline in tuberculosis.

To me the greatest suggestion in therapy from the whole subject is not the possibility of the cure of cancer by the use of tuberculin, but the possibility of finding out if there is a normal *"via media"*, a variation from which in one direction gives the possibility of tuberculosis, and in the other direction, of cancer, and if so the chance of knowing the normal, and if possible restoration to normal to the detriment of both tuberculosis and cancer.

In my article, between the lines there is a very strong indication of a region for research that ought at least to be tested out.

Yours truly,

J. W. McINTOSH,
Medical Health Officer,
Burnaby, B.C.

NEWS AND COMMENTS

P. A. T. SNEATH, M.D., D.P.H.

Dominion Council of Health

THEIR period of appointment to the Dominion Council of Health having expired, Mme. Jules Tessier of Quebec, Mrs. C. E. Flatt of Saskatoon, and W. F. Stephens, Esq., of Ottawa, retire. Announcement is therefore made of the appointment to membership of Mme. P. E. Marchand of Ottawa, and Miss A. M. Stuart of Grand Pre, N.S., to fill two of the existing vacancies.

Canadian Nurses' Associaton

THE Canadian Nurses' Association has elected the following officers for the years 1930-1932:

President — Miss Florence H. M. Emory, Assistant Director, Department of Public Health Nursing, University of Toronto.

1st Vice-President—Miss K. W. Ellis, Vancouver, B.C.

2nd Vice-President—Miss Gertrude Bennett, Superintendent of Nurses, Ottawa Civic Hospital.

Honorary Secretary — Miss Nora Moore, Assistant Director, Division of Public Health Nursing, Department of Public Health, Toronto.

Honorary Treasurer—Miss Ruby M. Simpson, Director, Nursing Service, Provincial Department of Health, Regina, Saskatchewan.

Nova Scotia

DR. BAYNE of Sydney has been appointed Health Officer for the Eastern Health Division of Nova Scotia by the Provincial Department of Health.

In his annual report to the Legislature, Dr. Clyde Marshall, Provincial Psychiatrist, shows that, of children referred to him by such agencies as Juveniie Courts, Children's Aid Societies, Orphanages, Schools, etc., 49 per cent were classed as feeble-minded, 11 per cent as doubtful, and the remainder, with one exception, as backward, dull, or average. The new Nova Scotia Training School, near Truro, is practically ready for occupancy, and wll be a great asset to the Province.

In the annual report of the Provincial Health Officer there is the information that, in the countries where public health nurses are employed, 94,626 school children were examined, and 6,824 were found to have one or more defects. The control of tuberculosis occupied much of the time of the one divisional health officer, who made 1,404 chest examinations. The death rate from tuberculosis, all forms, was 109, from pulmonary tuberculosis, 91.2.

Quebec

THE Provincial Cabinet have recently made the following appointment of public health interest: Dr. F. M. A. McNaughton as Medical Officer of Health for the municipality of Longeuil.

The New Mount Sinai Sanitarium at St. Agathe is expected to be opened during the month of July, providing dispensary accommodation for the local residents, and complete modern equipment for 10 bed patients. This institution is designed for the treatment of the tuberculous poor of the Jewish community and was assisted in the building by a contribution of $150,000 from the Provincial Government.

Dr. Alphonse Lessard, Director, Provincial Bureau of Health, in presenting diplomas to the graduates at Sacred Heart Hospital, pointed out that four years ago Quebec had 400 beds for the tuberculous, to-day, the number is 1,400, and he predicts it will soon be 3,000. He assured his audience that the Provincial Govern-

ment would continue the campaign against tuberculosis by creating preventoriums, hospitals and dispensaries wherever necessary.

The Bruchesi Institute which is to be built at the cost of $1,600,000, 40 per cent of which will be contributed by the city of Montreal, and 60 per cent by the Province, will provide 300 beds for the use of the municipality and province and an additional 100 beds for paying patients.

Ontario

DR. J. G. Fitzgerald, Professor of Hygiene and Preventive Medicine, and Director of the School of Hygiene and of the Connaught Laboratories in the University of Toronto, has been appointed from July 1st, 1930, one of the four "public health expert assessors", who act as fully effective members on the Health Committee of the League of Nations Health Organization. This appointment is made on the advice of the president and vice-president of the retiring Health Committee and is for a period of three years. Professor FitzGerald will attend the first council meeting at Geneva during September next.

A modern sanitarium for the treatment of tuberculosis in the Niagara Peninsula was opened on the 17th of June last. This institution with accommodation for 80 patients cost $275,000 and replaces the old sanitarium built in 1908 to accomodate 20 bed patients, which number is now quite inadequate. It is situated on the Merritville road seven miles from Welland and five miles from St. Catharines, and owes its construction largely to the beneficence of Col. R. W. Leonard of St. Catharines, whose substantial donation made the new building possible.

Dr. Alexander Primrose, C.B., F.R.C.S., Dean of the Faculty of Medicine of the University of Toronto, was recently honoured by election to the presidency of the American Surgical Association at Philadelphia, Pa.

At the recent second annual Canadian Conference on Social Work, Premier Ferguson announced that a series of clinics would be established throughout Ontario to determine whether the inmates of the various institutions for the mentally abnormal could be restored to society through active scientific treatment outside these institutions.

The Premier noted that the Province was forced to expend some $500,000 dollars for the care of persons who should never have been admitted to Canada, and promised that active investigation was now under way to devise means whereby this could be avoided.

Alberta

ALBERTA Association of Public Health Workers held their annual convention at Calgary on June the twenty-third and twenty-fourth. The register showed an attendance increase of over fifty per cent. Those present evidenced an active interest in the various subjects presented and every paper was discussed thoroughly.

The morning session, on June the twenty-third, was devoted to a discussion of the various phases of the control of tuberculosis.

During the afternoon session, Dr. J. Scovil Murray of Calgary, presented a paper on the subject, "Undulant Fever", and reviewed the case-history in a recent case in Calgary. Dr. G. Oakley then addressed the convention on, "Improving the Physique of the School Child". Mr. L. Bennett, of the Calgary Technical School, outlined the qualifications for Health Inspectors. Dr. A. C. McGugan reviewed the organization and progress of County Health Units in the United States and Canada. At the evening session, Dr. M. R. Bow, Deputy Minister of Health, discussed Modern Tendencies in Public Health Work, and the Hon. George Hoadley, Minister of Health, indicated some of the dividends from Public Health Work.

At the morning session, June 24, Dr. Jenkins discussed the Control of Communicable Diseases, and at a round table conference various delegates presented local health problems. Considerable interest was evidenced in the "overcrowded" house problem.

The following officers were elected for the year 1930-31:

Patrons — His Honour, William Egbert, the Lieutenant-Governor of Alberta; The Hon. George Hoadley, Minister of Health.

Hon. President—Dr. T. H. Whitelaw.

President—Dr. M. R. Bow.

Vice-President—Dr. G. Oakley.

Sec.-Treas.—Dr. A. C. McGugan.

Assistant Sec.-Treas. — Mr. G. Cattle.

Executive—Dr. R. B. Jenkins, Dr. A. S. McColgan, Dr. R. B. C. Thompson, Dr. McLeod, Mr. H. C. Graham.

The increasing interest which the public now gives to the health of school children is evidenced by the fact that the United Farmers of Alberta have requested the Government to make school medical examination compulsory. Although the trustees may, by existing legislation, apply funds to this end, many of the rural schools have not been provided with the service. The Council of the College of Physicians and Surgeons of Alberta have suggested a new scale of payment for this school work and there is little doubt that the service will be extended greatly in the near future.

The May number of the monthly Bulletin circulated by the Communicable Diseases Branch of the Department of Public Health, notes that during the period 1925-1928 inclusive there were 5541 cases of scarlet fever in Alberta, with 117 deaths directly attributable to the same cause. The Department has prepared a pamphlet for distribution to the public outlining the salient features of scarlet fever, its mode of spread, symptoms, etc., and emphasizing the value of active and passive immunization as well as advice to parents and others as to preventing the spread of the disease from the patient.

British Columbia

AN amendment to the Medical Act in this province was recently passed after some early opposition,

restricting the title of "doctor" to those legally qualified as physicians and surgeons under the Act,—similar legislation to that in existence in Ontario.

The War Veterans' Allowance Act

AN Act of Parliament known as The War Veterans' Allowance Act, becoming effective September 1st, 1930, was passed in the closing session of the Dominion Houses of Parliament, and has now received the Royal assent.

It has been claimed by many physicians that the hazards peculiar to the soldiers in the Great War lowered their vitality to such an extent that some are now unable to compete in the general labour market—and many of these are unable under previous legislation to establish a right to pension because they cannot prove injury or disease due to service. The new Act, based on the general agreement that old age pensions become payable at the age of 70, assumes that service in a theatre of actual war should entitle veterans to these benefits at the age of 60, as such service is presumed to have shortened their work expectancy by at least 10 years.

The four clauses of the Act as quoted herewith contain most of the salient features and it is of interest to note that single men have been given privileges under the Act as well as married men providing always that they are unemployable by reason of physical or mental disability, or have attained the age of 60 years. The Act largely follows the principles laid down in the Dominion Old Age Pensions Act, with modifications calculated to cover the needs of the veteran.

"4. Subject as hereinafter provided, allowances under this Act shall be payable with the approval of the Committee to any veteran who, at the date of the proposed commencement of the allowance, has attained the age of sixty years or is, in the opinion of the Committee, permanently unemployable by reason of physical or mental disability, and in either case is, and has, for one year immediately preceding, been domiciled in Canada.

"5. The maximum allowance payable in any year to a bachelor or to a widower without children shall be two hundred and forty dollars less the amount of the income of the recipient in excess of one hundred and twenty-five dollars a year.

"6. (1) The maximum allowance payable in any year to a married man or to a widower with a child or children shall be four hundred and eighty dollars less the amount of the income of the recipient in excess of two hundred and fifty dollars a year.

(2) No married man or widower shall be entitled to any allowance in excess of the allowance payable to a bachelor unless either he and his wife or he and one or more of his children reside together.

"7. No deduction shall be made from any allowance by reason of any sum payable on account of clothing allowance pursuant to the Pension Act or any additional pension payable to him under the said Act or on account of his children or on account of casual earnings not exceeding one hundred and twenty-five dollars in any year; and when a veteran is the owner of an interest in premises on which he resides, the allowance payable to him shall not be subject to any reduction in respect of the annual value of such interest, provided its capital value does not exceed two thousand dollars.

BOOK REVIEWS

D. T. FRASER, B.A., M.B., D.P.H. and R. R. MCCLENAHAN, B.A., M.B., D.P.H.

Lead Poisoning. *Report of the Committee on Lead Poisoning, presented to the Industrial Hygiene Section of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 4, 1929. 1930, American Public Health Association, 370 Seventh Avenue, New York, Publishers. 37 pages. Price seventy-five cents.*

Physicians and others responsible for the health of workers in factories where lead is used, should obtain a copy of the Second Annual Report of the Committee on Lead Poisoning, Section of Industrial Hygiene of the American Public Health Association.

This is a progress report intended as a basis for the establishment of standards in diagnosis, treatment and control of lead poisoning. There is included a form for reporting cases of occupational disease, emphasizing the history, especially a detailed occupational history, and symptoms and signs, with the diagnosis.

In the indications of "lead absorption", as distinguished from lead poisoning, are included changes in the morphology of red blood cells,—stippling, polychromatophilia and reticulocytes. Surely these changes are evidence of damage by lead and not merely evidence of its absorption as indicated by a true lead line in the gums or lead in the urine.

The description of the main types of cases encountered and the enumerated symptoms and signs commonly noted in defined incipient, sub-acute, acute and chronic lead poisoning are helpful to those working in this field but cumbersome for the general practitioner.

Cases for diagnosis of lead poisoning are divided into those with positive disability, doubtful disabilty and no disability. Since disability is a requirement under Workmen's Compensation and, except where medical supervision of lead workers is established, is usually already apparent when the workman seeks medical advice, the practical significance of this classification is not clear.

The section on treatment deals with immediate toxic manifestations and with "deleading" after the acute sypmtoms are relieved.

Industrial control rests on a practical plan and its adequate execution. Stress is laid on the primary importance of controlling lead and its compounds in the form of dust and fumes, the provision of adequate washing facilities, and medical supervision of workmen to detect poisoning in its early stages.

The statement regarding the bibliography indicates that there are 265 references to articles published during 1928, 112 of which were abstracted at the time of the publication of the Report.

Requests for copies of the Report itself or the Bibliography should be addressed to Dr. C. P. McCord, Secretary, Section of Industrial Hygiene, 34 West 7th Street, Cincinnati, Ohio. Those who are not members of the

Section of Industrial Hygiene may obtain mimeographed copies of the Report at 50c and of the Bibliography at 75c each. J.G.C.

Epidemic Encephalitis. — *Report of a Survey by the Matheson Commission. Wm. Darrach, Chairman. Columbia University Press, New York. 849 pages. Price* $3.00.

The foreword states:— "A great deal of work has been, and is now being done throughout the world, on the subject of encephalitis. It seemed worth while for someone to collect and tabulate this work so that the collection would be available to all who are interested. This idea so appealed to William J. Matheson that he generously undertook to make it possible. A Commission was appointed which would represent the laboratory, clinical and epidemiological viewpoints. The actual detailed work has been carried out by Dr. Josephine B. Neal, whose long experience in this and allied fields has pre-eminently fitted her for the position.

"At Mr. Matheson's suggestion, the Commission is continuing this work on encephalitis, and has undertaken a number of studies of the causes, treatment and end results of this condition. Results of these studies will be published from time to time."

The publication of the report in this form is eminently worth while. The volume is an excellent review of all the literature, so constructed that it is in very readable form, ready of access and instructive. The subject matter of the review occupies 400 pages, and the very extensive bibliography, 430 pages. Both author and subject index are complete.

The subject matter has been placed under the following headings:

I. Summary of Investigations on the Etiology of Epidemic Encephalitis.
  Early Theories of Epidemic Encephalitis.
  Toxic Disturbances of the Central Nervous System.
  Cultivable Bacteria.
    Spontaneous Encephalitis in Rabbits.
    Protozoa.
  Filtrable Viruses.
II. Other Types of Encephalitis, including Post-Vaccinal Encephalitis.
III. Summary of the Treatment of Epidemic Encephalitis.
IV. Epidemiology.
  Historical Account.
  Geographical Distribution.
  World Incidence.
  Seasonal Incidence.
  Age, Sex, Occupation and Race.
  Mortality.
  Communicability.
  Summary of Reports by Countries.
  Summary of Incidence.

This arrangement makes it possible for the reader to acquaint himself very quickly with the main features of any phase of encephalitis.

The Commission has made little or no attempt to pass critical judgment on the communications reviewed—and the review in every case is most kindly—but they have so arranged the material that one finds the criticism or analysis of crucial points in the review of probably the next com-

munication. The various authors thus speak for themselves.

One notes with interest that the Commission is continuing its labours and will publish later reports. A review of the communications which are bound to follow the recently published work and opinions of Gay and of Zinsser, will make most interesting reading.

The Commission is to be congratulated on the Report. It is a unique and worthy effort that has reached a high plane of success. The volume in regard to the printing, set-up, and binding, is beyond criticism. There is no hesitation in recommendng it to all interested. Let us have more like it.

CURRENT HEALTH LITERATURE

D. T. FRASER, B.A., M.B., D.P.H.

An Outbreak of Food Poisoning Proved to be due to a Yellow Hemolytic Staphylococcus—*Dack et al, J. Prev. Med., Vol. IV, No. 2.*

The results obtained by these workers would seem to indicate that food poisoning may be due to micro-organisms which have not in the past been incriminated. The evidence obtained was that two sponge cakes made in the same bakery caused the illness of eleven persons. All those known to have eaten of these cakes manifested symptoms typified in nine by acute gastro-enteritis, vomiting and diarrhoea, and by epigastric distress and diarrhoea in the two cases with delayed symptoms. No deaths occurred. Volunteers ate portions of the different components. The cream filling, which was most suspected, produced no symptoms, but an average portion of the cake substance itself produced in one volunteer symptoms of food poisoning in three hours. All components of the cake were innocuous when fed to monkeys, rabbits and mice. Of three strains of coccus isolated, the filtrate of one only proved toxic when injected intravenously into rabbits. This strain was a yellow hæmolytic staphylococcus. Human volunteers who drank different amounts of this filtrate developed symptoms of food poisoning.

The production by staphylococci of a substance causing food poisoning—*Jordan: J.A.M.A., Vol. 94, No. 21.*

As an extension of the work reported by Dack *et al.* several strains of staphylococcus were investigated in order to determine if toxic filtrates could be demonstrated when fed to human volunteers. Six such strains were used. Altogether sterile filtrates in 5 to 10 cc. amounts from these six strains used singly produced "illness" twenty-six times as against "no illness" eight times. These strains were of diverse origin and did not constitute a homogeneous group.